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day of January 1999

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AUSTRALIA

Patents Act 1990

CSL LIMITED

PROVISIONAL SPECIFICATION

Invention Title:

P. gingivalis sequences

The invention is described in the following statement:

P. gingivalis sequences

FIELD OF THE INVENTION

5 The present invention relates to *P. gingivalis* nucleotide sequences, *P. gingivalis* polypeptides and probes for detection of *P. gingivalis*.

BACKGROUND OF THE INVENTION

10 Periodontal diseases are bacterial-associated inflammatory diseases of the supporting tissues of the teeth and range from the relatively mild form of gingivitis, the non-specific, reversible inflammation of gingival tissue to the more aggressive forms of periodontitis which are characterised by the destruction of the tooth's supporting structures. Periodontitis is associated
15 with a subgingival infection of a consortium of specific Gram-negative bacteria that leads to the destruction of the periodontium and is a major public health problem. One bacterium that has attracted considerable interest is *P. gingivalis* as the recovery of this microorganism from adult periodontitis lesions can be up to 50% of the subgingival anaerobically
20 cultivable flora, whereas *P. gingivalis* is rarely recovered, and then in low numbers, from healthy sites. A proportional increase in the level of *P. gingivalis* in subgingival plaque has been associated with an increased severity of periodontitis and eradication of the microorganism from the cultivable subgingival microbial population is accompanied by resolution of
25 the disease. The progression of periodontitis lesions in non-human primates has been demonstrated with the subgingival implantation of *P. gingivalis*. These findings in both animals and humans suggest a major role for *P. gingivalis* in the development of adult periodontitis.

P. gingivalis is a black-pigmented, anaerobic, asaccharolytic,
30 proteolytic Gram-negative rod that obtains energy from the metabolism of specific amino acids. The microorganism has an absolute growth requirement for iron, preferentially in the form of haeme or its Fe(III) oxidation product haemin and when grown under conditions of excess haemin is highly virulent in experimental animals. A number of virulence
35 factors have been implicated in the pathogenicity of *P. gingivalis* including the capsule, adhesins, cytotoxins and extracellular hydrolytic enzymes. In

particular, proteases have received a great deal of attention for their ability to degrade a broad range of host proteins including structural proteins and others involved in defence. The proteins that have been shown to be substrates for *P. gingivalis* proteolytic activity include collagen types I and IV, fibronectin, fibrinogen, laminin, complement and plasma clotting cascade proteins, α_1 -antitrypsin, α_2 -macroglobulin, antichymotrypsin, antithrombin III, antiplasmin, cystatin C, IgG and IgA. The major proteolytic activities associated with this organism have been defined by substrate specificity and are "trypsin-like", that is cleavage on the carboxyl side of arginyl and lysyl residues and collagenolytic although other minor activities have been reported.

P. gingivalis trypsin-like proteolytic activity has been shown to degrade complement, generating biologically active C5a, impair the phagocytic and other functions of neutrophils by modifying surface receptors, and abrogate the clotting potential of fibrinogen prolonging plasma clotting time. The trypsin-like proteolytic activity of *P. gingivalis* also generates Fc fragments from human IgG1 stimulating the release of pro-inflammatory cytokines from mononuclear cells and is associated with vascular disruption and enhanced vascular permeation through the activation of the kallikrein-kinin cascade. *P. gingivalis* spontaneous mutants with reduced trypsin-like activity as well as wild-type cells treated with the trypsin-like protease inhibitor N-p-tosyl-L-lysine chloromethyl ketone are avirulent in animal models. Further, it has been shown that *P. gingivalis* grown under controlled, haemin-excess conditions expressed more trypsin-like and less collagenolytic activity and were more virulent in mice relative to cells grown under haemin-limited but otherwise identical conditions. The increased expression of the trypsin-like activity by the more virulent *P. gingivalis* has led to the speculation that the trypsin-like proteolytic activity may be the major determinant for infection or disease.

There has been considerable endeavour to purify and characterise the trypsin-like proteases of *P. gingivalis* from cell-free culture fluids. Chen *et al*, (1992) [J Biol Chem 267:18896-18901] have purified and characterised a 50 kDa arginine-specific, thiol protease from the culture fluid of *P. gingivalis* H66 designated Arg-gingipain. A similar arginine-specific thiol protease has been disclosed in JP 07135973 and the amino acid sequence disclosed in WO 9507286 and in Kirszbaum *et al*, 1995 [Biochem Biophys Res Comm

207:424-431]. Pike *et al* (1994) [J Biol Chem 269:406-411] have characterised a 60 kDa lysine-specific cysteine proteinase from the culture fluid of *P. gingivalis* H66 designated Lys-gingipain and the partial gene sequence for this enzyme was disclosed in WO 9511298 and fully disclosed in
5 WO 9617936.

In order to develop an efficacious and safe vaccine to prevent *P. gingivalis* colonisation it is necessary to identify and produce antigens that are involved in virulence that have utility as immunogens to generate neutralising antibodies. Whilst it is possible to attempt to isolate antigens
10 directly from cultures of *P. gingivalis* this is often difficult. For example as mentioned above, *P. gingivalis* is a strict anaerobe and can be difficult to isolate and grow. It is also known that, for a number of organisms, when cultured *in vitro* that many virulence genes are down regulated and the encoded proteins are no longer expressed. If conventional chemistry
15 techniques were applied to purify vaccine candidates potentially important (protective) molecules may not be identified. With DNA sequencing, as the gene is present (but not transcribed) even when the organism is grown in vitro it can be identified, cloned and produced as a recombinant DNA protein. Similarly, a protective antigen or therapeutic target may be
20 transiently expressed by the organism *in vitro* or produced in low levels making the identification of these molecules extremely difficult by conventional methods.

With serological identification of therapeutic targets one is limited to those responses which are detectable using standard methods such as
25 Western Blotting or ELISA. The limitation here is the both the level of response that is generated by the animal or human and determining whether this response is protective, damaging or irrelevant. No such limitation is present with a sequencing approach to the identification of potential therapeutic or prophylactic targets.

30 It is also well known that *P. gingivalis* produces a range of broadly active proteases (University of Melbourne International Patent Application No PCT /AU 96/00673, US Patent Nos 5,475,097 and 5,523,390), which make the identification of intact proteins difficult because of their degradation by these proteases.

SUMMARY OF THE INVENTION

The present inventors have attempted to isolate *P. gingivalis* nucleotide sequences which can be used for recombinant production of *P. gingivalis* polypeptides and to develop nucleotide probes specific for *P. gingivalis*.

In a first aspect the present invention consists in an isolated *P. gingivalis* nucleotide sequence, the nucleotide sequence consisting of or including a sequence selected from the group consisting of SEQ ID NO: 1 to SEQ ID NO. 1565 and sequences complementary thereto.

In a second aspect the present invention consists in an isolated *P. gingivalis* polypeptide, the polypeptide being at least partially encoded by a nucleotide consisting of or including a sequence selected from the group consisting of SEQ ID NO: 1 to SEQ ID NO. 1565 and sequences complementary thereto.

In a third aspect the present invention consists in a nucleotide probe specific for *P. gingivalis*, the probe including a detectable label and a nucleotide sequence of at least 15 nucleotides, the nucleotide sequence being derived from a sequence selected from the group consisting of SEQ ID NO: 1 to SEQ ID NO. 1565 and sequences complementary thereto.

DETAILED DESCRIPTION

Preparation of the *P. gingivalis* library for sequencing.

To determine the DNA sequence of *P. gingivalis* genomic DNA was isolated from *P. gingivalis* strain W50 (ATCC 53978) essentially by the method described by Mamur J. (1961). Cloning of DNA fragments was performed essentially as described by Fleischmann *et al.*, (1995). Briefly, purified genomic DNA from *P. gingivalis* was nebulized to fragment the DNA and was treated with Bal31 nuclease to create blunt ends then run twice on preparative 1% agarose gels. DNA fragments of 1.6-2.0 kb were excised from the gel and the DNA recovered. This DNA was then ligated to the vector pUC18 (*Sma*I digested and dephosphorylated; Pharmacia) and electrophoresed on a 1% agarose preparative gel. The fragment comprising linear vector plus one insert was excised, purified and this process repeated

to reduce any vector without insert contamination. The recovered vector plus insert DNA was blunt-ended with T4 DNA polymerase, then a final ligation to produce circular DNA was performed. Aliquots of Epicurian Coli Electroporation-Competent Cells (Stratagene) were transformed with the library DNA and plated out on SOB agar antibiotic diffusion plates containing X-gal and incubated at 37°C overnight. Colonies with inserts appeared white and those without inserts (vector alone) appeared blue. Plates were stored at 4°C until the white clones were picked and expanded for the extraction of plasmid DNA for sequencing.

DNA sequencing

Plasmid DNA was prepared by picking bacterial colonies into 1.5ml of LB, TB or SOB broth supplemented with 50-100ug/ml Ampicillin in 96 deep well plates. Plasmid DNA was isolated using the QIAprep Spin or QIAprep 96 Turbo miniprep kits (QIAGEN GmbH, Germany). DNA was eluted into a 96 well gridded array and stored at -20C.

Sequencing reactions were performed using ABI PRISM Dye Terminator and ABI PRISM BIGDye Terminator Cycle Sequencing Ready Reaction kits with AmpliTaq DNA polymerase FS (PE Applied Biosystems, Foster City, CA) using the M13 Universal forward and reverse sequencing primers. Sequence reactions were conducted on either a Perkin-Elmer GeneAmp 9700 (PE Applied Biosystems) or Hybaid PCR Express (Hybaid, UK) thermal cyclers. Sequencing reactions were analysed on ABI PRISM 377 DNA sequencers (PE Applied Biosystems).

The sequences obtained are set out below.

It will be appreciated by persons skilled in the art that numerous variations and/or modifications may be made to the invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to
5 be considered in all respects as illustrative and not restrictive.

Dated this 30th day of January 1998

CSL LIMITED

Patent Attorneys for the Applicant:

F.B. RICE & CO.

References.

Mamur, J. (1961) A procedure for the isolation of deoxyribonucleic acid from micro-organisms. J. Mol. Biol. 3, 208-218.

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Fleishmann, R.D. et al. (1995) Whole genome random sequencing and assembly of *Haemophilus influenzae* Rd. Science 269, 496-512.

cccgactgtc tgtgggagga cagaaacaaa gccttcattt tcgaaagccg atcttcgcaa 900
tctatccctg tggac 915

(2) INFORMATION FOR SEQ ID NO:1397

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 587 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
 (B) LOCATION 1...587

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1397

gctggagctt atccgcgatt attgatatgg ggactctcct ctctctgttt tgtaacctat	60
cattcaccaa ctaatacata cgtaatgcaa aagccttcat acccaaagga atgcgcgatt	120
tcagtccggt cgaaatgagc cggcgacta catattcgac accatacgcg aggtgtacga	180
actcttcgga ttcaacaaat agaaactccg acgatggaga tgctctccac gctgatgggc	240
aagtaggaga ggagggagac cgcttgctct tcaagggtgct caactccggc gacggctggc	300
agacttctgt gcgagggaac tggcagagaa aaattctctg cggttgcagc caaagcttgt	360
gagaaagggc ttcgatacga cctgacagtt cctttgctcg ctacgtgggtg atgcatcgca	420
acgaagatca atttcccttt caacgggtatc agattcaacc cgtatggcgt gccgatagac	480
cgcagaaggg ccgctatcgc gagttttacc agtgcgatgg agacgtcatc ggctcggatt	540
cgcttcatga atgaggtaga actcatccag atcatcagcg aangtct	587

(2) INFORMATION FOR SEQ ID NO:1398

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 889 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
 (B) LOCATION 1...889

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1398

gtaaaaggta	tgagcatgga	agaagccgct	ctggagggtga	accactgggtc	cacgagaaaag	60
ctacatacag	ccccagcgac	ccacgcactc	gctctccgtt	gcaacgggtga	agaatgctct	120
cggacgttgc	ggtgaggagt	ccaccttacg	gtggctgccc	tgcgctcggg	aggtattcct	180
gccagacagg	tctatagccg	cgctgggcac	atacggacga	caaccacgca	tgggtggagg	240
tatggtagat	ggcaaatggt	acttcacgga	agcctgcgaa	cctgcagccg	agctaacgat	300
gcatggttca	acagctccgt	tgtccgcgcc	atgctgacgc	atagcgggtc	ttcggtcggt	360
acgaagggtc	ggaagagaag	ttgttccgca	cgccaaactac	acggagatca	actgtatcga	420
caactatgcc	ccgacggaaa	tatcgaagtc	aaagtcaccg	accgctccgg	tgctgtgggtg	480
gaagggggccg	tattcgtttc	tgcattctaca	actattcggga	gttctatccc	gtgggtgacga	540
gcaatccgat	gctcaaggac	tggcttccct	gcgtgtaggc	aaaggcgaat	gctcatttgg	600
gcagccaagg	acggactctt	cggttatgcc	ctgtccaggc	cgacgatcgc	aaaccgctgg	660
ccatcgcact	ggacaacttc	gaagcaagcc	cgaatggggc	gatttcaaaa	tcgtaccacc	720
tgcaggagat	cccattcctac	tacctgctct	ccacagcaga	tcagcacgaa	cgacgcccgt	780
ctccgcgtga	ggattccatt	cgggcagcct	atgaagccac	attcgccaca	gccagcagtc	840
tgcagcactg	gctgccgaat	tgggtgtgga	tgcgcctgcg	ctacaggca		889

(2) INFORMATION FOR SEQ ID NO:1399

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1499 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1499

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1399

acgacgtact	ggccaatata	gaagagcgcg	acaggatcga	ctccacacgg	ccgtttcacc	60
tttgagacag	gctgaggatg	ctttagtgtc	ggacaatttc	atatgaccat	tccgcagcag	120
aaggcatggt	tgctggagcg	ttttcagaag	tgaccgggtc	atgattccaa	tagaaataga	180
cagcggatcg	ggatttgctt	cgggtgtgggtg	aatgctattc	gtcatgccga	gaaagcaatt	240
ggagaaaagc	tccgataagc	tttactgcct	gggcgatatt	gtacacaata	cgctgagggtc	300
gaacggttag	gaaagaaaagg	attggagacg	atcgattacg	atgtttttcc	cgactgcgtg	360
gggcaaagggt	actgttgctg	gcccattggag	aactcccga	atctatcgga	tggcaggaga	420
aaatggggta	acgatcatag	agccacctgt	cctgttgtag	tccgcttgca	aaacaaaatc	480
aaatcacgat	cgaagctacg	cgcagcctcg	gcgcacaagt	cgatcatctat	ggcaaaaagag	540
gcatgcggaa	gtaaaacgggtc	tggtcggggca	gaccgaagga	acggctatgt	catagagagc	600
gaggaggagc	tggacaaaat	agattacaca	cgctcctgcat	tctcttttcc	caaacgacca	660
agagcctgga	gggattcggg	cagatctcga	cagcatcagc	acacgtatgc	agccgggtgt	720
aactttcgag	catcagatac	catctgtcgc	caagtggcca	atcgaatccc	gcatatcgga	780
gcttcgccac	tgcacacgaa	ctgggtgttct	tcgtagccgg	agagaaaagc	tccacgggaa	840
ggtactcttc	gggcattgtc	tggcagccaa	tccgcgcagt	attttatttc	ctccccggag	900
gtcatcgtgc	cggatatgct	ggttcctctg	cggccagcat	aggcatctgc	ggagccacct	960
ctacgccccg	atggcagatg	aagagggtggc	atcgcacatc	aaggctctat	tgtaaaactcg	1020
gccgccaccg	caagtggctg	ctatatcctc	ctttataatg	catccccctga	taggtgcgtt	1080
gggtgcgata	cgcgccacat	tgtacggagc	ggagtgtacc	aaataagcag	gactacattc	1140
ttggccgata	cggttcggta	gctgaccctg	gaatccgctt	caggaaaattg	cccgcacaga	1200
tgatgtgatc	caactgtctc	cacttccctt	atacagagtt	gtcccggggag	ggatctgaga	1260
gagaggacag	cccggagggtt	gtacaactcc	cctgtcccg	ctttgccggc	ttcgggcaga	1320

acctaccggc	ccgtaagggtc	tcgatcagag	gggattcgtc	cggattgctg	ttaggtctcc	1380
catgatcagg	atgaaaaggga	ttgtgccggc	ggcttagtat	ccattgcatt	tcgttctcaa	1440
cagagtggcg	gcatcgtgcc	gataggcatc	gattggcgca	cacctcctct	gcgagaagg	1499

(2) INFORMATION FOR SEQ ID NO:1400

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1484 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1484

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1400

ttgacgtgta	ctgaaaaaag	ttgacagttg	ggcgggatgc	aaccagtatc	attatgggca	60
aacattttaa	caactttgaa	cgccttagca	tccttgagat	tacctctcgg	ggtcagatag	120
caaagtagcc	attgagcaga	aatatggcta	agtcatggtc	tcattcgctc	ttggcttagt	180
aaatttggac	tcgaagtaaa	gttcatccgg	tcccaatgaa	agtgtcccaa	tccccccaga	240
gtgagtaccc	ctgaacgaaa	aagaagagtt	agagcagcta	cgtaaagaaa	atcggctcctc	300
aagagtcgtc	tcaagcgaga	agaactaggg	catcaagcct	acagctactt	gtagagttgg	360
cagaagaaac	ctacggcatt	cagatacgaa	aaactccgaa	gccaaagtagt	tcaccgttta	420
tcagagccgg	agcctaggta	tctattgctc	gactctgcga	actgcttggc	tttagccgtc	480
aggcctttta	aaacgtcatc	tcaacgattt	agcacaacat	gaggaggatg	tcctatgcat	540
agtatcatcc	aatattgttg	gcacttaaga	caagcagagc	acctacctaa	gccggcttcc	600
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gggtttgcct	atctctccct	actgaccgat	gcctatagtc	gcgtatcgta	gggtatcgct	900
tacatccgac	cctggaagtt	gaaggctggt	taatgctctg	catcaagcct	ttgctttcta	960
cgatcaacat	caaattgata	gaccaatatg	attcatcata	gcgaccgagg	cattcagtat	1020
gccggtaagg	ttacaccgat	ctgttgcatg	ggcggaggctg	gcgcatcagt	atgactcaac	1080
gggagatcct	ctgcataatg	cattggctga	gcggatgaac	aatacgccaa	gaactcgtgg	1140
cacatctcct	cttcgaagca	gtcttttgat	caagcatcct	ttctgtagaa	caagccgtgc	1200
gcatgtacaa	cgaggcgctg	ccacacaagc	tctaggggcg	aaaacgccta	tgcaagtcct	1260
tgcgccagag	tctaaaaatcc	gttactggca	aggatcgaac	attggccgga	gattgcccc	1320
gagtataccg	aaagaatgaa	tgtcagacaa	agagctaact	ttgctcgtgt	caccgaaatt	1380
agacttaagg	gtaaggggtg	tcaacctaaa	gtagaattat	aaaagaacca	gtaaaccaat	1440
tgtagaacta	tcccgcctaa	ctgtcaactt	tttcagtaca	cgtc		1484

(2) INFORMATION FOR SEQ ID NO:1401

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 391 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...391
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1401

tcgactctnn	aggatcccct	gataattgat	ggaaaattcc	acatttcttc	agaaatttac	60
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ggaactctgt	ccacgacagg	tcaagcacgg	tcttgccatc	cctttcctcc	ctgcccacct	240
tcaaggtacc	ttctcaacgg	tgaacgaacg	cttgactca	tccgaaaaca	gtttcccgta	300
acgacaagga	cttttccttg	tagcagttca	tcagtatgtc	tctggataat	ccgaccgaac	360
ggcaaatcct	ttctattctg	aggaactcgg	c			391

(2) INFORMATION FOR SEQ ID NO:1402

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1280 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1280
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1402

gagaccattg	cacggcattt	ttgcgacata	tttgccctgca	ttgcttgcca	tatcaataat	60
atttagtatt	ttacacgtat	aaacaagagc	ataaatatgc	taccaaaca	actgtcaagt	120
ctacactcag	gttcgcagag	atcgcataaa	cactctttcc	tgcgtcaa	aatgccggt	180
tttgattggc	gtggtatcgc	acactgctga	acaagaaata	caccaagaca	cagaatgcc	240
taggtaccct	gcctacgatg	cgctgttgat	gttcaagatt	ctactcttgg	agactgggat	300
ggtttgagt	actacgaggt	tgaggagtgc	atcaacgact	cctgcttttc	agtgaattcc	360
ttggcttgga	cctcggcttc	ccttcccccg	acatagcacg	atcagtcggt	tccgtagtga	420
actcactcgc	ttgggggatta	tgataaaactc	cttcggggagc	tgaacaagca	gttcaagaag	480
cacggcatca	ccgtatcgat	caaggcgcca	tcgttgatgc	gagcattgtg	gatagtccta	540
cgcccctgat	ggcaacgtgg	tcatagaagt	ggctgaagat	cgagaggga	acgcgtcgga	600
gaagctcgta	cacagccagg	aggcttatca	ttgtgaatca	agagtggcaa	accggggagta	660
gactcggagg	ctcgttgggt	acgcaaggca	ggcactatcg	gtatggatac	aagaagcacg	720
tcttgacgga	cgagcggggt	tggtagaaac	agtggtcacg	acctcggcta	attgtgcaga	780
cacgttgtat	tacctgagct	gatcaagaag	tcgaagttgc	cgggaggaat	taggttttgg	840

ccgacaaagg	ctattgcagc	aagaagaatt	cggagtattt	ggccgtcaag	gtttgataga	900
tggattatg	ctcaaggctc	atcgagggtc	atcctcaagt	gaaagtcaaa	aacaactcaa	960
tcggatgac	agtaagacgc	ctgcttgata	gaacgtacct	tcggtagtat	tcgacgatgg	1020
ttctgtggcg	acgatgtcgc	tatcgagagt	tagccaagac	acatacccgg	aatatcctga	1080
agctatggcc	tacaatctca	agcgtatgcc	ggggcttctt	gtgcttcagg	cgcaaaatag	1140
gcgctaaacg	accgtccctc	gagggcaatt	gccctcaggt	gcgggaaagg	ggactaatcc	1200
ccaagctgca	aaacagacga	gaatgtcaaa	aacacaccgg	gaacaagcga	gcagaaagaa	1260
cagcctcttt	gtgcatggtc					1280

(2) INFORMATION FOR SEQ ID NO:1403

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 671 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...671

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1403

tacgcagttg	gttttcaccc	gtgattcggc	acctgccgaa	ctatgcgacg	cgccgaagac	60
ttgggacgtg	agtgggtgat	ccgtgccacg	ggcacccgat	ggagcgctcc	agcaaaaatc	120
cgaatatccc	caccggcgat	atagagaagc	agtcggagaa	atggatgtgc	tgaaccgctc	180
cgaagtgcgc	cctttcccat	cgaagacgag	accgacggag	gcgatgacct	ccgcatgaaa	240
tatcgtacct	cgacctgcgc	cgccactgcg	tgcgctccaa	tatggaaactg	cgccccggat	300
ggctctggag	gtgaggaagt	atctcgacgg	cgagggattc	ctcaagtaga	gacccccatg	360
ctgatcaagt	ccacgccgga	gggtgcccgc	gatttgtcgt	accctctcgg	atgaatccccg	420
gccagttcta	cgctctcccc	cgtcgcctca	gaccttcaag	cagctactga	tggtaagcgg	480
cttcgatcgc	atttccagat	cgtgaagtgc	ttccgcgacg	aagaccnccg	cgccgaccgc	540
agcctgagtt	tacgcagatc	gactggcaan	atgagctttc	gtggagcaga	agatgtgctg	600
tccaccttcg	aaggatatggc	caagcacctc	ttccgtacat	ccgtcacgtg	gagatttcgg	660
aagccttccc	c					671

(2) INFORMATION FOR SEQ ID NO:1404

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 514 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...514

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1404

tgctttgcag ctccacaaag cgattataag agacaagatg tgggaactcg atcgacaaga	60
ataggtgatg tattgaagat aaaaagcttt caaatctcgt atcttgacag atgaaacagg	120
atcaggatgg tcatgacctc actgtccaca tcttaaactt tctattcctg cgttttttgt	180
ctgcctcttc gagggttttt tcttgattgc ttcatacaaa agcttggaga aatcatctat	240
gatgcaaaaa catcaactat atttgctctc ataaaagtagc gttttgttcg ttcgatctta	300
ttgattatca actgctaaga tacaaataat tcgctacttt ttcagcataa tgcccacgtt	360
ctttgggcgt ttaaccctaa tcaaaaaaca aatcattggt gttttcttac gtcgaactga	420
cgtaagaag aggttactgg caaatctttc gtaaaagagt caggcgtagc tttatgctta	480
taacataaaa agaaagtgtg cctcaatccg cacg	514

(2) INFORMATION FOR SEQ ID NO:1405

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 412 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...412

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1405

tttgggaacc gatgtccga acttatctcc ctaccatcta ggagtttccg tacacagcct	60
tcttggtgat cctaattgctc aagtcctgca atacacctct ccatctgtac ctagtgact	120
gagcagggtc tccnntgacc accgntatt cgtgattccc tgcttgctct tcttcccga	180
ggataagcat ccttttatcc aaaagtccaa gaaagcattc tcggtaagcg catgataata	240
accgaactgg ccatgtgtcg gtatttctgg aatagtgaat ggctcacctt gcgttggtg	300
tgaatgtctt ctaccgaata gaatacaaat acgggcaatg gccgtacctc cctcatctg	360
ttgcataccc ctctagtagc ccttttggtg tatcctgatg ggtcttggtat gt	412

(2) INFORMATION FOR SEQ ID NO:1406

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 348 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...348

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1406

ttcccagttt gccactgcag aacgcagcag cttntctaca cgtgccgaac ttctttgtta	60
gagaacttca gcacacccaa ggcgcgattc acttccatcc acgaatcata tcggggccacc	120
aatctcatct tgcggggaga agtaggccgt tacgaagctt ggcaaagtac atctgcttga	180
gggcttcctt tcttgctcgg ctgaattatg ttttcttgca cccattgttc ttaatacttt	240
taattttcag attcctgaag tgtttgatt caaccgaatt acttcttctt gttacggcat	300
gaccacggaa agtaccgtgt aggagagaac tcccctaact tatcccac	348

(2) INFORMATION FOR SEQ ID NO:1407

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 564 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...564

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1407

gcctccgaag ttcaagggtgc ctaccggcgg ttctaccctg atcaagtacg gctatggat	60
cattccgaag ctatgtatgt gaataagttc tatatcatat atatgactat tccaaagacg	120
cttggggagca ggggtattta ttggccatga gttcaactca cctcttcact acgtggaaga	180
atacactttc gatttgctca atggaagggg aaagacatca aggtggcttt cgtgaaaaac	240
ggtactatca aatggctatg gatgacatca gaatcctgaa ctaccaaagc ctgcagaggt	300
agaacaagaa ggtattcgga tttatcccaa tccgactacg gatggctgat gctggacaat	360
gtgggtgatg taagcgccat tcgtattata gaatgtatgg caggccgctt gtgggtggtcg	420
gcaatgccgg tagctctaag tgagtatcga tgtctccgat ttgggacggg gcaattatgt	480
cgtcgatatg agtgcaaagg ccataggaaa atcagccggc tgataacaaa agagtaaattg	540
ccattctctc ccgaggggga gggc	564

(2) INFORMATION FOR SEQ ID NO:1408

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 621 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...621

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1408

nctcgccggc	gngatccgat	cgtgtcggta	tcgcgccgaa	gaagggtggtg	atgcgggcttt	60
cgacctccac	ttggggcagg	ggggcaatac	gcacgaagcg	cccagacgga	ctcctctgcc	120
atagaaaaaa	gctgacgaat	agtgggtgcg	ggattgtgca	ccgcttcata	gagccggctcg	180
gcaaaggaat	ccgtatgaat	gccacggcgt	ccatactgca	tacgcggaag	caatttcctt	240
ccgcttaatc	ggcacgcaaa	gcaaagctct	tgcttccgt	cggagcctgc	catgctgcag	300
ctctctatcg	aagctattgc	tccgactcca	ctgcaacgaa	gcctcagccg	ccaccgctcg	360
tcgaacatgt	atcgccctct	cagcctgacg	gcaggctgcg	ccgatagcgt	ttgtcggcgg	420
tgcttcggat	ccggcagctc	ctgaaagagc	ggacagacgc	ttctctcctt	caaacatcca	480
gtacaaggct	ccgttttctc	ttttcgaccg	aagcgtggaa	cgaaactgcc	gtagtagtcg	540
caaaagctct	gaccgtccgg	tccgaaggca	gctcccaagc	ggcttctcca	tcacgccccca	600
ctcattgccc	ggcggctgta	a				621

(2) INFORMATION FOR SEQ ID NO:1409

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1672 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1672

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1409

atttcccggg	tatgattacc	aaaggagttc	gccattcgct	aaatgtggag	gaagatcgta	60
ctggatccgg	actctaaggt	tctggagcag	gtagttgttt	gggttacggt	acgggacaga	120
aactcagcac	tgtttcgggt	tctgtggcaa	agtgtccagc	gaaaagctcg	cggaaaagcc	180
cgttgccaat	atcatgatgc	cctccaaggt	caggtagccg	gtatgcaggt	tatgactaca	240
tccgggaccc	tactgccgtc	gcttctgtgg	agatccatgg	tacagggtcg	ttggggcaag	300
ctctgcacca	ttgtatatcg	tggatgggat	gcaaacttct	ttgatgttgt	ggctacgatg	360
aatccgaatg	attttgaatc	tatgtccggt	ttaaagatgc	ttctgcaaca	tctattttatg	420
gagctcgtgc	tgcaaacgga	gcgttttcat	tcaaacgaag	aaaggtaaaa	tgagcgagag	480
aggctcgatt	cctttaatgc	cagttacggg	atttctcaaa	tcctgaatac	taagcccctg	540
ataatatgat	gactggagat	gaattgctgg	attttcaggt	gaaggcagtt	tttgggggaa	600

caatcaaacc	gttcagaagg	ttaaagatat	gacccctccg	gagctgaaga	tttgatatggc	660
aattatgatt	ctttgaaaga	tgagtaggta	agacattgtt	cccagtggat	tttaatcatg	720
atgcagactg	gctcaggctt	tgtttaaaac	agcaccacc	agtcaagggtg	atatttcttt	780
ctccgagggg	ctcaggggaa	ttcatattat	gcctctatag	gctacttcga	tcagaaggta	840
tggctcgtga	accggcaaat	tttaagcgct	atagtggccg	gccaacttcg	aaagtcgtat	900
caatgaatgg	ctgaaagttg	gtgcaaattt	gctgggtgca	tagcgaatag	acgatctgcc	960
gactattttg	gaaagtatta	atgggggtcag	gtactttcgg	tgtgttaacg	atgcctcggt	1020
attataacct	tttgatgtga	atggggattt	agcagatgtc	tattacatgt	atggagctcc	1080
agaccttcta	tgacagaacc	gtacttcgca	aaaatgagac	cgttcagtc	gaatcacatc	1140
aggccaatgt	aaatggtttc	gcccagatta	ctccgacaaa	ggccttactt	taaaggcaca	1200
ggctgggtgt	gatattacta	atactgcact	tcttctaaga	gaatgcccc	taatccgtat	1260
gattctactc	ctctggggaa	agaagagaaa	gagcttatcg	agatgttagc	aagtctttta	1320
caatacggct	gaatataagt	tttcaattga	tgaaaaacat	gatcttacag	catgatgggg	1380
catgaatata	ttgaatatga	aggggatgtt	attggggcat	ctctaaagga	tttgaaagtg	1440
ataagttgat	gttactgagc	cagggaaaaa	cggaaatagt	ttgtctttgc	ctgaacacag	1500
agtcgctgaa	tatgcctatt	gtctttcttt	agtcgtttta	attacgggtt	tgacaaatgg	1560
atgtatatga	tttctctgtt	cgtaatgacc	aatcctctcg	attcggatcc	aataataaag	1620
cgcgtgggtc	tattctgtcg	gtggaatgtt	tgacatatat	aataaatcat	tc	1672

(2) INFORMATION FOR SEQ ID NO:1410

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 746 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...746

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1410

gattagtttt	tgtttcattc	gaatgaggta	gtttttgtat	ttggagacaa	tagttacgga	60
gccaagcggg	gaaccagacca	ggaagcatcg	ggccggagtc	gtacaggaag	cgatcgtgca	120
agcggctttc	gcgcccttgc	caaaatttat	tcgtaccggc	ttcacggcaa	agccacccca	180
agtgtcagga	cgtggccagt	ccgaccggca	tatttgagcg	actccttcat	gaattcctgt	240
acgataaaga	acgccccggg	ataggacgac	tctgtggcga	aatgcgcgcc	cctaccgact	300
tttgtaggga	cgtgtagcaa	aataagcatc	gctaagctcc	ggcctaaaat	acgtacatcc	360
ccctccacat	gtatctgacg	ctccagttcg	tgcagaggaa	tgtgagacag	acgtgcggat	420
tggcagccat	ttgctgcccc	tgcgactctc	atagttgctg	tagaagataa	attcgttggt	480
cataaactcc	tgagcaaaa	ggtttcgcgt	ctgggatgac	cgtcaggagt	agccgtccca	540
cgataacggc	tgtaggctca	tatgttttgg	cttcgaccgc	atcttgacc	atctgggtgac	600
aaggctgaaa	ggagtaggtg	tcaggtcgct	ggcgggaagg	ttcgttggtc	tattcccggc	660
tgatattttc	gaaatgtaaa	tccatgtttt	gnggntttta	ttgtccggac	aaagttatgc	720
cattggaatg	gtcgtccaaa	atcctt				746

(2) INFORMATION FOR SEQ ID NO:1411

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 470 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...470

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1411

ggccactgtc	gtgaaatctg	ttcctccggt	cgggtgctat	gggctttatt	tctccattgt	60
cgggtgtgatc	atctttacgg	gccttaccgc	tttcgatgga	acaaaatcaa	gcagatgctg	120
gctcaaacgc	aaggattcga	agagggaatg	tagttcgcaa	agtagccctg	atgggagcct	180
tgacgctcta	tctggattca	tcaatctttt	cctctatctg	cttcgettct	tcggccgaag	240
ggactaatcc	ctcccattga	aaagacaaag	acaataataa	aaatccctgc	caactggatc	300
gttggcaggg	atttttcatt	gaaacaccgt	tagtcnatag	atctcntaca	actacattga	360
cgatcctccc	ggggactaca	atgacttttt	tcgactcttg	ccttccancc	aacgggctgc	420
ttccgggaac	aataaggctg	ctgctctaca	tcttctttgc	tcatatcggg		470

(2) INFORMATION FOR SEQ ID NO:1412

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 362 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...362

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1412

tgggttaagc	gtacatatat	acaaaggtag	cacagttttt	aattaacttg	cgtaatagcg	60
tctgtaaaac	agattggcta	aagatgttat	ttgagtcttc	tttgtagatc	gaaaaaagat	120
atgaaacaga	cttttcgctt	tatcaaacaa	ttgaacggat	tactcacctg	aagccgaatg	180
ctacgatgat	gttggttttg	cttcgggtgt	ggcagtcatc	atggctaata	gttcgttgag	240
tactactatc	atgaaatttt	agagtaccct	atcaatctta	cgatcggagg	tcataggtct	300
tttctcatca	tggagagacc	atgaccttgc	tccagtttgc	gaagatgtgc	tgatgggtcat	360
tt						362

(2) INFORMATION FOR SEQ ID NO:1413

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 420 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...420
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1413

gctacagaca	ccgtgtcagc	aagctgatgt	ttctcggcag	cacctgtatt	acccgcgcga	60
tgcccgtcag	ccgatgcgtg	aggaagaatt	gctgacagtc	cgctggaata	taccaacgag	120
ccatacgcca	tagccaaaat	cgcaggatga	agatgtgcga	gagcttcaac	ctccaatacg	180
gcaccaatta	tatagcgtga	tgccgaccaa	cctgtacggg	cccaacgaca	atttcgattt	240
ggagcaagcc	atgtgcttcc	ggccatgatc	aggaagattt	acttggccga	tcgctgcttc	300
gccacgatga	ggaaagccgt	tccgcacgga	tttgtccata	cgtctgtcga	aagcatcgac	360
ngatcttctt	ctttcaatga	tattctctca	ttctgaagcg	gtacngcatc	accgccgaaa	

420

(2) INFORMATION FOR SEQ ID NO:1414

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1747 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1747
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1414

atcacggggt	gaaaaccaac	tgcgtagtag	cgtaacgggt	ggcagatca	caaagggtcat	60
gccgcccag	cggcgcacgc	gctgtaccca	accgcagagt	aacggtttgt	tgcagatgag	120
aaaggcgcaa	ctcgccacag	gtatttgtct	gtacataatg	ataagggggt	cttctattta	180
tgatcgattt	tgtggacaaa	agtacgaaac	aaagcggact	tttcctccta	aaacactcga	240
tgctgggtgg	ggtaataccc	taaaagcaaa	ggccttgcac	atttgcgga	agtctatgaa	300
gaaaacaggt	ctttgacccg	attgggactt	tacggagatt	acgagtgtaa	gagactctgt	360
gatttgactg	catgcagtct	gtttccatca	tcgacggctc	tgcgctcgt	tagcagttct	420

cagaccaaaa	acgcatgggg	ctggggcgag	aaaacgtggc	gcgggatttt	tttcgttttg	480
gttcgggaat	aaaaatttct	cgcgcgtaaa	cgaagtaatt	tacgcgccta	aatctcgcaa	540
atacgcgccg	caattccatc	gattgcagtg	cgtaaaattc	agtaagagga	aggtgaggag	600
cacgaactcc	ctcgtttaag	ataatgggtgc	tgtgttcata	cgtacatcat	cgtaacagacc	660
gctgtctatg	aaagatcgga	gtatacggca	cctccctcca	ctaacagcga	ctgtatgccg	720
cgagcgtgca	gttcgccagc	atctgctcca	cgggagggcg	ggagggatcg	atccgaacga	780
aagaacagcg	gagggatagc	cggaggggtg	ttctttttcg	gtaaagacca	gtggggcaca	840
ctgccatcga	agaggggtgag	gtggcggtggg	agagccagat	gggatctgtg	accacacgta	900
gcggatttcg	gccgtacca	tgccgaaccg	tagagaggga	ttgtccaaaa	gagcggtagc	960
gaacccccacc	aatatggcat	gtgtatcatt	cgtctatggg	gcacaaagcg	tgtggtcaga	1020
ggtgtactcg	cctgacagga	gggggtggagg	catngtcgng	cagtgcgtca	atgaatcctc	1080
gctactctct	gcccatttga	gtgtgacata	gggacgggtg	tgccgttggc	tgtgaggaaa	1140
tgccgattca	gtcctcggc	ttcctctgca	agtagtccac	ttggaccgat	acgcctgcgt	1200
cacgaacatc	cttgatgcct	cttccgaaac	ggatgggaaa	ggatcgagca	tggccaccac	1260
ttcatgaggg	atgcctccc	aaggatcagg	tcggcacagg	gaggcgtttt	gccataatga	1320
gagaaggctc	cagactgaca	tagagggtac	tttctctgag	caaagccctg	tccgcacaga	1380
gtttatggcg	atgacttcgg	catggggcat	gccggcacag	tgtggtagcc	ctcaccgatg	1440
atacgcccat	gagccacaag	gactgctccg	caagcggatt	gggagagggtg	aacccttcgg	1500
cattctgtgc	taattcgatg	cacggcgcat	atacagagga	tcgggagtca	tacctaatgt	1560
ctaatttttt	tctgatgatt	acgcttaacg	aagctnaaca	gcgaatcgaa	tcgacacgaa	1620
cggctctgata	cgacaaggat	gaattgcgca	gcatcatgcg	agggctctga	ccgaaagcaa	1680
cccggcctaa	gcccgcctcc	cacttttgc	tgcagcaaa	atagcgtttt	tatcgaccgc	1740
aagncat						1747

(2) INFORMATION FOR SEQ ID NO:1415

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 436 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...436

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1415

aacaactaat	gtctcacaaa	ttaatttaag	aacagagatg	aaaaaactgt	tttagcgact	60
ttgggactta	tggccattgc	catgctctca	tgttcaagaa	caacaaggat	ttggagaaca	120
aaggggaggc	tactcttttg	gtaacgttgg	tagctcctat	aaagctccac	gcgaaacct	180
tgcgaagatt	gagaagcttt	tgccgcagct	tatcccgatc	aaaggataag	ctggacatac	240
acgtctctat	tatccgaaag	aaactggctc	agcagggtat	ttatatcgat	gctcggatga	300
ggcttttgag	aaattggctc	gtctgggtta	taagaagatc	aatttacaga	gtcttcatgt	360
gattccccgc	cgagaatatg	atgagatgat	cgctttgttc	aataatttta	aggcagcaca	420
tagtgaatatt	actgtg					436

(2) INFORMATION FOR SEQ ID NO:1416

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 846 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...846

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1416

cagctcctcc	tcgaagattg	ataccgaggn	aatttcctca	gaagagcaga	agacatagta	60
ctgtagtatc	tccgtcaact	ggcgggacat	acacagcagg	caaagacaaa	gccgatgagg	120
ctaagtgtcc	aaagccgaat	ggaatcgcg	catagactgc	cgacggatgg	gcagggccatg	180
aggctcccaa	ccaacggaac	gtgcatacag	atagacttta	taaacaaagt	gtcctacgat	240
aagtcgacgg	cgatacccg	gataatatcg	gtgatgaaat	gcactccgat	ataatacggc	300
tatagatgac	gagtgcgacg	acgtccaga	tcgtccacgt	gtaaatttat	tccgaaaaat	360
acggctcgta	aataatgcca	gcgatatgta	gtcgtcgtat	gccctgagat	aaatccgnac	420
tttctcccc	gatagccgta	gccgtcttca	catagtcgat	aaaatcaggg	tggtgcgaag	480
ggcggaatct	gcgaagaaa	gcttgaaaaa	agaagaggag	agttgatcgc	agatgagtag	540
ctcaataaga	ctgctcctac	gatgaagaga	gcttcctttg	tcggtttcta	taaaaaagga	600
agaacagaaa	cgcgatggac	attatcaccc	aagtccattg	gccgagatca	aatagaaaaa	660
accgtccaac	aaaggatgct	gtactcgttc	agagtcaaaa	agaggttcct	ttctacttca	720
agaatgtatt	ccaaaacata	tatgcaagag	aggtaaatat	cagtcctgcg	gagagacatg	780
aatagagtga	ggacggtagc	aggaagccag	ccttccttgc	catcagccag	ttcatcgggt	840
accagc						846

(2) INFORMATION FOR SEQ ID NO:1417

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 474 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...474

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1417

atttattccg	aagtaaggac	ggaacaagta	accgttcaag	aagaacagaa	gagtaaagcg	60
gtcggcagat	ttgtccaccg	ctactttctt	tcatgagcgg	ggaaatggcg	aaaaagaaag	120
gagcaaagaa	atccgataaa	aagcattcgt	tatttttggc	agtgagcaga	tattccttgt	180

ggaaaaatccc	cctaaatcta	tgccccatat	agcaattttac	agtagcttttc	tgaactttcat	240
ctccgcaacc	tgttgatttc	atccttgtag	gtctcaagat	ggtggaggat	gatgtttcca	300
catagatgcc	gatgggtcata	tccctattcc	tcatagacat	gacatctccg	ccaatgtatc	360
ctgtaactct	ttggcaatat	agatgggtctt	gcatttttca	aagtattgcg	acagatgaaa	420
agcgactcat	aatcgctttt	gcggattttc	gcctttctct	tcttgaaact	ctng	474

(2) INFORMATION FOR SEQ ID NO:1418

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1422 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1422

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1418

ttaatgagtg	cccctttgag	acatcaacga	catgaccggc	aacagcactg	tgctcctcca	60
atcatcgcc	tgctccccgt	atatgcacct	gtgccacgtg	tgccgtctga	ttcacattgc	120
gtccatacga	gccgataccg	cctccgggtc	aataatccat	ccggccacca	tcggcacaca	180
gtagcaacca	ataatactat	gaggagacct	ttgcacggca	attgggatct	ctaacacatt	240
aattcggctt	attccggacg	gagcatcatc	aggcctatat	gtgtgttaac	acttaaattgc	300
gatcgccctg	ccggatggac	gatatttggg	actcgaatgg	gtaatatctt	tatatattg	360
accatatgag	aaaatcactc	actattaaaa	ataaaaaacat	agaatgaaga	aaacgctttt	420
gctcgctg	gtagttgttt	gagcagtttc	gtcgtacaag	ctcaacagaa	gagtgcagac	480
gtttagagaga	tcagttcact	actattaaag	aagtgccaat	tacgccgggtg	aaagatcagc	540
caactcaggt	acatgctggt	catactctgc	attaggattc	ctcgaaagga	aatcctccgt	600
atgggaaagc	ccgaagtggg	cttggccgaa	atgcactcgt	agctcaatca	tacaaggaca	660
aaggcgagaa	gtatgtacgt	atgcatggaa	gctgaacttc	ggacagggcg	gttccttcta	720
cgatgttctc	tatgtgtgaa	gcactacggc	gtcgttccac	agtctgtcat	gcagggttg	780
aacttggcac	gaagaagaat	gtcacagtg	aattggccga	cggtgctctg	gccacctcaa	840
ggctatcgtg	acgaatccta	atggcaagct	cactcctgca	tgaaaaagcc	tatgatggga	900
tcacgcacag	ctacctcggc	acatgtcctg	aactttcact	tatgaaggta	agacctacac	960
gccgaagagc	tttgctcagt	tctcggtctt	aatgtcgatg	actatgtgtc	gctgacttct	1020
tatacgcata	tcctttttac	acacagtttg	ccctcgaaat	cgaagacaac	tggcgcggtc	1080
tctctcctat	aatatgcccc	tcaacgagct	gatggagact	atggaattgc	catcaacaac	1140
ggctattcca	tcgcatgggg	ttcggacgta	agcgaatggg	ctttacgcgt	gatgggtatcg	1200
gcgtattggc	cgacgtagaa	ggtatgaagc	caaagggtcg	gatcaggatc	gttgggtagg	1260
attgagccgt	gccggaagca	ggcagagatc	attcgtacgg	ttaatagtgc	cgattgtcct	1320
gaatcaaccc	cactcaagag	ttccgtcaga	aaggttacga	tgagtatagc	ctaccgatga	1380
ccacgggatg	gttatctacg	gtatcgccaa	gaatcagaat	ga		1422

(2) INFORMATION FOR SEQ ID NO:1419

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 602 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...602
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1419

tctcagcgcg	ggattgtttc	aaccgcagga	gcttcctctt	ctactgcaga	gtctccatag	60
ctaccgaagt	ggccgaatca	gccgctgcat	cttgagcgaa	gcctgagtca	tgaagcctac	120
tgacataaag	gccacacatg	caattgtgca	aataactttt	tcctcgcgag	tcttttgttt	180
agattagtac	ttttcgtttc	ttttattttg	ttccttaata	atcttctgcg	cggagagagc	240
gggatcgaa	cgcgaaacg	cttcggcgt	ttacacactt	tccaggcgtg	cctctcaacc	300
actcgagcac	ctctccttgt	cattccatta	aaaactccct	accgtcaact	tgggtgcggc	360
tatagcctta	tgcctcagcc	tcataaccac	gattatgggt	gggaggattg	ccgatcaata	420
caacgtctta	accggattca	tcgcaaatct	atgttttttt	catcattcca	tccttatatt	480
ggagcacatt	ttcagttgga	atacttaaat	cggacgaata	atttttccct	cttgaaacta	540
aaaccgaaaa	aacggcatgc	atttcgggcc	gttttttcag	ccaaaatacc	ggatccagtc	600
ca						602

(2) INFORMATION FOR SEQ ID NO:1420

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 409 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...409
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1420

aacattttacc	tcaactgcaa	cagtggattg	ttctgtctat	atatggagga	tactaatatt	60
tctcacaaca	ttagaaattg	caaaaactta	taacctcgaa	tactaaccct	taaaagagta	120
aaaagatgaa	aaagttatcg	ttacagatat	tggactattt	ttcgctgctg	ctgttctgat	180
ggtattttctg	acaggggcga	aaaccggttt	gacttggagg	acattccgca	agaagcggaa	240
atccgacacg	ctcgccata	ggcgagacgg	ataacggcag	agaatacctg	ggcctaattt	300
ttacctgaca	agttcggatg	aagtggtttc	ggacagtcga	tccgagcaga	aaggaaaaatg	360
ctggcccgtg	catttaacat	tcagaccggg	cttgggagca	attgcttag		409

(2) INFORMATION FOR SEQ ID NO:1421

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 554 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...554

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1421

cggttggttg	gcaagagcac	gtgatgctta	tgctaaagga	gatacaattt	ttttaacagc	60
aagaattaca	cactggggaa	tgaacgtaat	cttggggagt	agtaaaaaag	atgcctggca	120
tgggaagttt	gaccagacag	gaaatattca	tatcaaggaa	agaaaattgg	aaaggtcttg	180
gttgacgggc	aggatattta	tcctcttctt	ccggtgttgc	catgaatacg	cttcctcctg	240
attttccaat	tcgatagaat	tgctttcgaa	ttatacggat	ggtgatattg	cccagctttc	300
aaggcataag	aacaattagc	cctcaatctg	aagtccaata	aaaagttgct	ttaagcggtt	360
cttttgaagg	cggangcggc	ctgaaagaca	aattatcagc	aaagcatctt	tgattacagt	420
cttaccaaaa	atatctgcc	gaccatcatt	aacgccata	atacaggtga	ggctgttttt	480
tcgattcaag	ttatatgtcg	aatatcatag	actttgaatc	gatccgaagt	ggagcttcac	540
gcagacatct	ttaa					554

(2) INFORMATION FOR SEQ ID NO:1422

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 421 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...421

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1422

atcttctata	cttgatatta	ttgattacct	cctattgtca	gataatcccc	tatagttgag	60
aatattatta	atgaaaatgt	tgaattctat	ggaatgaaat	atttcttgaa	gaaagaagct	120
acatccta	gaggaaggca	cctcattagg	acaaggtagc	caagatgtgt	attggaagga	180
gcaagaggaa	tatccttgcc	atacatacag	actcactctg	tgggtgagat	gagaacaatt	240

ctgacaggat	gttttatgtt	cctcagcatg	aaactaaagt	tggtaatcgg	aagtcaatat	300
gaccttcagg	cattttttgc	catttaatta	tctaacagag	gattttatttc	atcagcaaac	360
acttattttg	atacggcatt	ttttattaat	cgagttatga	tggttttcctt	gattatgcat	420
t						421

(2) INFORMATION FOR SEQ ID NO:1423

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 616 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...616

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1423

cgccaaaccg	gtcataaaga	agaggaagaa	agtgatccag	aagctttgtc	acctttctcc	60
ttgcgcatca	gttggaaaga	aataccgatc	agccccaag	caacggaagc	atgtagtaca	120
catttgtgtc	gcgattcttg	gtcataagtc	cggcattgtc	tccgtaggac	cgataagaat	180
cttgtcaatg	aagggaatac	cgtcacggca	ttgccacgca	atagtcctcc	gtcgccttgc	240
aggtcttctg	acggccggaa	aaattccaaa	ggaaataacg	ccagtaacata	taatgacctg	300
ataattgaag	aagaatttca	ggttctctcc	gaatgtaggc	atatggtatc	cgtttcggat	360
cgccccatcc	agatattata	gctttgcgga	tgccatcggt	agtgggaatag	acacgtggga	420
aaagcatcat	ggaaccatct	cataatcgta	ttcgcggtgt	gtatagagcg	tttcgtaacg	480
atccttatct	taggatttac	cttggggcga	ggccctgtta	cttctgccat	ccttcaacca	540
caggttggga	tgcaaaggaa	ggcccgtaga	tcacgggtac	ttcgtatttt	cgcgagcaag	600
gtagctacaa	gccgaa					616

(2) INFORMATION FOR SEQ ID NO:1424

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1786 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1786

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1424

gagtacagaa	tcccagacct	tagtcccttc	gtgtccgatt	tccatcagcc	gaaggcaacg	60
aaagtacagac	atatcagcaa	ggcactccac	gagccgttct	gtccatgaag	cctgcataac	120
gcatagccgt	ggcccgatcg	atagcccatg	tttgtggccg	ataaagacgg	cactctgctc	180
tgccagagcg	aaacaaatgc	cacggctcca	ctgatatgga	agaaaagctc	caaaccggca	240
ggtctccttc	cgagttgaaa	tcctccagta	gcatgccggg	gaaagcagct	gcgaaatcag	300
gatccccaac	caatagagat	agaaacgggg	cctcaaccct	tgctcttgtc	ggatcgagtt	360
ttttcgtgag	atggttcctt	catagcttct	cgatgacaat	attcggttcg	atttgtttaa	420
taccaacgcc	tcccgtgggt	acatgccctg	cgagacgata	gccctgcgac	tcttataaga	480
tcaattcggg	agagagccga	agggaggagg	tgaggcaaag	gcactctcca	gcgtgcattt	540
ccgaccagcg	tacgggcaca	attgatcacc	ccgccatggc	agaagatcgg	atggagcgat	600
aaccggcagc	tttcttttcc	aggatgaagt	cccgaccgt	tcgaactgct	ctcgttgcca	660
ttcgccgccc	gatacgggtt	cgtctagtag	cggcggaaaa	atgcttctat	gtctgtcgtg	720
tccagaattt	cttcagggtt	ttgccttccc	agtcgccgaa	gttcatctcc	ttcagccggt	780
cgtccggatg	gcatcgggat	agccgcaaaa	ggccgccaac	ttggccgcac	gctcagaggg	840
ctggtaaaga	ccgcctcggg	atcgaggcct	ttgagacggg	caaagccgcc	gcagcctcct	900
cttcgaaggt	gtctcgaacg	tccacatcgg	taatccgtag	cagtgtctcat	tgccattgaa	960
cagcaccgag	gtgtggcgca	cagatatatt	ttcatcagtg	gattattagg	gtatcgggtca	1020
gaaaaaagct	tccgaatccg	acaaagatag	tagaaagaga	gtgcatctga	aaacagatat	1080
tcgaggatta	tcgatcaact	gaaaaggcag	gagttgtttt	gcgttttggt	cgggaaatta	1140
cctgatcagc	attcgtaaaa	acgtggcgcg	agaatttttc	ggtttgccgc	caagaatttt	1200
aaaatttttt	ggaaccacag	cgaaaaaatc	tcgcgccgtt	ttctcaggat	ttacagacca	1260
caatccgagc	atttcgggtt	gtaattcatc	gaagagacag	gttttacctg	aatcagaga	1320
gagatatccg	tagtccaacg	gttcatcctt	atatcagagg	ttaaaagata	tgtacgtcca	1380
tcgaggagct	gattggctta	gtagggtgaga	ctttcttaag	aacctatcgg	cacctacagg	1440
aagttcatgg	cacacaaggc	aaaggaggca	tcttcgcaga	ccggactcat	atcaaaagga	1500
tgaaacgact	tttccataca	caaccaaata	gccgtctacg	gtagacgaat	gcaaacccaa	1560
tatgaggcat	caatcaatcc	gaatgacagc	ttttgggcaa	tatattatgc	atattttatt	1620
cgcgtttaaa	ggaaaagtgc	atatatttgc	gattgtggta	ttcttcgggt	ttctatgtga	1680
attttgtctc	ccaagaagac	tttataatgc	ataaaacaga	aggggtacta	cacagtaaaa	1740
tcataattcta	atttcatcaa	aatgaaaact	tgaacaagtt	tgtttc		1786

(2) INFORMATION FOR SEQ ID NO:1425

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 851 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...851

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1425

aaaacccatg	gtcttcgccc	gtgtatatcc	gatcgaagca	gangacttca	gaacttgccg	60
gcttccttgg	agaaactcca	actcaacgat	gcttcgctac	gtttcagccc	gaaagttcgg	120
tggtctctcg	attcggattt	cgttgcgatt	tctcggtttg	ctccacatgg	agatcgtgca	180
ggagcgattg	gatcggagtt	caatatgaat	gtgatcacga	cgggtgccca	cgtttcttat	240

aagggttacga	caagaaaggt	ggctgcaaag	aggttcacaa	tccatcgga	ctgccgaacc	300
cacgcttata	gatcatatag	aagaaccctt	catcagagct	tcttcatcac	caatacggcc	360
tatatcggcc	ctatcatgac	actttgtttg	ggaaaagagg	ggtggttggtg	aagcaagaat	420
atatatcggg	cgatcgtgta	ggatcttcta	cgatcttcca	ttgggcgaaa	tcgtcatcga	480
cttctacgac	aactaaagag	tatctccaaa	ggatatgctt	cattcgacta	tcacctgcag	540
acttttagaga	gagcaagctg	gtaaaagctcg	atattctgct	caatggcgac	ccgtcgatgc	600
cctgtctaca	ctcacacacg	tggacaacag	tgtcacatcg	gccgacgcat	gtgcgaaaag	660
ctcaaagaac	tcattcccgcg	tcagcattcg	aaatagccat	ccaagcagct	atcggagcca	720
agatcatcgc	tcgcgaacga	tcaagcctgt	ccgtaaggat	gtgacggcca	agtgctatgg	780
tggcatatct	cccgtaaagc	taagctgctc	gaaaagcaga	aagaaggaaa	gaacgcatga	840
agcagatagg	c					851

(2) INFORMATION FOR SEQ ID NO:1426

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1952 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1952

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1426

agctccgttg	ggaaaggccc	tgctccgaacn	cgcgtgcaat	aggccttgat	atcccgtaca	60
catcgccac	attgcgagga	gctactcca	agccggtaaa	cagccggcac	atatacgatt	120
gctactggtc	acgaacgggt	aagaaccaag	tcaatgtcca	agagcgaacc	ttgggctcct	180
tcggccaaaa	ccttntgccc	gacaaaagg	caccattgat	cagaaattca	ctgtccacga	240
attcaacttg	cgcagatatt	tngtagcctc	catccagcgt	tcctccagat	ccgcagcttg	300
tccgtaggat	agttcagggg	attcagtag	cgaagatgac	gctcttggcc	accgaatagg	360
cctcttcgaa	gccgtgttcc	aaatctccga	cagcaagccg	ttgcggctca	ctttgtccgt	420
atatgtgggg	ccgatccctt	tcctgtgggt	ccgatcttgc	cgcttccctt	agccatttcg	480
ttggcagcat	caacagccga	tgcgtaggca	taatgaggtg	ggccttgccg	gagatcacgg	540
acgcttggtc	agatcgtgac	cgctgcgggc	aagagcttcg	gcttcttctt	gaaaagcagg	600
ggatcgagta	ccactccatt	gcctatgaca	ttcgtttctc	accctggaag	attcccgaag	660
gaatggaacg	aagcacgtat	ttctcccgtt	gaactcaagc	gtatgtccgg	cattggggcc	720
accttgaaag	cgagcacaat	atcgtagtgc	ggagtcagta	catccactat	ttttcctttt	780
ccttatcgcc	ccattgcagg	ccgagaagta	catccacttt	ttccatatcg	gataatgta	840
tatgtctgtg	ttattatttt	ttcttcttgg	gagcggcttt	gtcggccgct	ttttgagggc	900
cgactgcttc	ttcctgcatt	tgtcgcata	acatagaggc	aaatgatggc	ctgcctataa	960
gagaagcgtg	gtggctctgag	tccttgtcgg	ccagtatcga	cttcacattt	cgtcggtagt	1020
aggtagaaat	tgtgcacatt	cggtacagaa	aagcagcgga	cactgctctg	caaatagaac	1080
atcaagtact	gatatttggt	ttcgggagaa	ggcaaacgca	gaacgatccg	cagcggttca	1140
gcaaggtaag	ggtattatag	accgtagaaa	gacttaaggc	aagccattct	cgcgagttag	1200
atcgaacaag	tcgtccggcg	tgaattcttc	ttcagattat	atgcgacttc	aagaatgctg	1260
tatcgttcgg	gggttgacgc	aagccgttct	ccgacacata	tgcacgcaat	cttgagcgaa	1320
gatttccagt	gatgtgacta	tcattctttac	aactgccatg	gcactatcga	cagagctaca	1380
aatatagttc	ttttgaagaa	gttggctcgc	aggaaacccg	atggttttta	tcttttcgat	1440
ccattcttgc	cggcagagag	caaggcagtg	gcgaatcctc	cttgagaatc	ggagcaagcg	1500
aatcgaacga	cagcgtaatt	gtatcggccc	catggcatag	ggagcgatct	cgtactcatt	1560

gtagaggaag	taatacctcg	ctccgagatt	ccgaaattgt	ccgtaggata	aagatcgcca	1620
aggtaccata	gccccatttcg	ttgaggcttt	ccaaagaaga	aacccctggt	ctgccattaa	1680
ctgcttccag	agcaaatecg	tgagancagc	atcttgccct	gcgcgatgat	gtctttcaaa	1740
agaatctgct	tgccggtagc	caaacgaggt	tgagatatgc	aacgtcgcca	taaccatgac	1800
taccgcccac	gtattgaaag	cttcgatctc	atagaccaag	agactgtttt	gcctgaaaac	1860
gacttgcccc	ttatgtgatc	gacataggca	taaagcccca	agtcgggtct	gaatcgggct	1920
tgagcgcaag	ctcctccttc	agcaaagggt	cc			1952

(2) INFORMATION FOR SEQ ID NO:1427

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 984 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...984

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1427

ttccggagca	atattccaag	ccactcttta	ttgcgcatat	gcagaaatcc	gcgaccttcg	60
tggtgcgata	aaaacgcgct	gttgtgtact	gaaaaaagt	acagttggga	tgtgcgggat	120
tcatataagt	ttacacacat	atccggtagt	cctatgcagg	ggttacaact	gtcggtcggg	180
atttccccct	gcacaccaca	cgttacaact	gtcggtcggg	atttccccct	gggtttacac	240
aacaagcccc	cctcccaaac	atttaggaca	ctattggggt	tttagtacct	ttagctgtga	300
taatatccag	atctgctaca	tgaaacaatc	ggggacggct	gcaacaagct	aacgatattc	360
tatgtcggta	tgcttcttct	ctttttgatc	ggctttgggt	tttcgccact	atcgggaaaag	420
agttggaaac	caatgtagtc	gcaaagcgat	gtcccttcgg	gggccagggt	gattggtcgg	480
tgctttcgat	ctttcagcga	atcggtacat	caccatttca	cggacactat	cggtgtcttt	540
tggtgcagat	catcggtatt	cttacgggtg	cgaggctcgt	agcgtgggtt	tcgggaaaat	600
cggccagccc	actgtaatcg	gtgaaatcgt	ggcgggatac	tcctcggccc	atctctcttg	660
ggagcgggtt	ggccggaggc	ttatgagtc	ttttccccct	gtccgccttg	gccaatctgg	720
agctgctcag	tcagtcggcc	tcacctctgt	tatgtttgtc	attggcatgg	agctgaatat	780
caatacatta	agcctcgctt	cagccaatcg	atgatcatca	gtcatgcagg	tattttatcc	840
cctttctctt	aggcttgctg	atcagctata	tgacatataa	ggttatgcag	ccgataccac	900
gacttttctc	ccctatggcc	tctttatcgg	ttctcgaatga	gcatcacggc	ttttcccgta	960
ttggccagaa	tcatacaaga	cgtc				984

(2) INFORMATION FOR SEQ ID NO:1428

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2623 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2623

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1428

cggcaggatt	ggtcgatttc	ttgcgtcgag	ccaaactcag	ccataccacg	cggctatcgt	60
agctacggct	gcagcagtgc	ttgtccctat	ccagatggcg	gccagaactg	ggatgatcat	120
gategctcgg	gacgctatgt	gggacgcatt	tcggtgtcaa	ttacttggag	agctgcgacc	180
ccaatgccgt	tattttacct	atggcgataa	cgataccttc	cccctctggg	atgctcagga	240
ggtagaggcg	ttcgtaccga	tgtccgtgtg	agcaatctca	gttacttggg	agcaactggg	300
atgtgcgcca	gatgaagcag	caagccctatc	agtccgatcc	gctccattga	agaatatgaa	360
tgaagccttc	atcagccgga	atgcctttgt	tctgtcgatc	ccaattactc	tgccagagat	420
ccggagctga	acctccattc	atcccgggta	gcggactcac	ggccgatggc	aagcccatca	480
tgatgctgtc	gaagccatga	aaatagccgc	tcgtccgggt	ccttatggca	atgggtgtgag	540
ccgtctgaga	acctgtatat	gcccgtagat	tcgcaagcat	tggggcagcg	tttggcgatt	600
cggctaagggt	gcatgtccgt	caaaccatcg	atctgtcttg	gccggtaagg	gcgtcctctc	660
attggccgac	ctgaagcggt	ctcgattgat	agccaataac	gaatggaagc	gtcctatcta	720
ttgggctatt	acgtcccag	caattctttc	tccaacctgc	cggactactt	gcgtcagacc	780
ggtaggcca	tcagtttgtg	ccttttaagg	cgcgccgcgt	aggcgataac	atcatgtgga	840
aaagacctat	accaatgtga	tgaccaagtt	ccgcttcgga	gggccaacaa	tcccaagggtg	900
tacttcgatg	cagatatctg	caattccacc	atacctatcg	cgtagctgtg	ttttctccgt	960
tggcaaaggc	tctgctcgaa	gaggcgatac	cgttcgtgcc	cgtaagggtg	tcaccaaagt	1020
cctccaagaa	tcagtcctga	agccgtgccc	tatgattatc	gctcgctggg	attggcacia	1080
ccctgtacga	tgcagatatg	gtggccgacg	cagaccggat	agtcaagccg	tggcaggctc	1140
ttcgatgcgt	acgcttaact	ggttcttccg	cctgtcgaat	ccaaattcat	gcaaattgctt	1200
tccgaaggag	agatcgacag	ggagagaata	cggttgcctac	ggctcttcgg	ctgagtactg	1260
cttataatag	caaatgttgg	atgaatatct	gcccgtgttc	cagaactatt	ataagatgct	1320
ctaactgatg	agcagggtaa	tagcaaacccg	caataaatgc	agctcagact	cgagaacgac	1380
ttatctgccg	tgtgcccattg	tggtagccggg	ccttggttccc	cgtgccacgt	ggcgcatctc	1440
tgccaagaaa	ggaaaaagca	tctatctgac	ttcgatgacg	gtcccatacc	ggagataaca	1500
ccctgggtat	tggatacgcc	gatgaactcg	gggtgaaggc	cacgttcttc	tgtgtggcgg	1560
ataatgtggt	cgctatcccc	atctttttgc	cgagatacag	cgtcgtgggc	atcagggtggc	1620
aatcacactt	tccaccatct	gcaagggctg	aaagtccgta	cacgtactat	ctgaaagatg	1680
tggaagaggc	tgaccgactt	atcaattctc	gcttcttcga	ccgccgcatg	gccatcttcg	1740
cttcatgcag	acctcctgc	ttagaatcac	tacgacatta	ttatgtggga	tgtgatcacg	1800
cgcgattata	atgtcgccct	tcacccgata	ccgtcttttg	ttcgggtggg	cgctatgcgc	1860
gcacggctcc	attattacct	tccacgactc	cctcaaagcg	gctcccaata	tcagcaggcc	1920
atgcctcgcg	ctgtgcgctg	gctattggat	gaaggctata	cttcaaatgt	ctgggcgacc	1980
cggccgacta	agccgtttac	ctgttttttt	gtccgatgat	tgtccttacg	gaagacggat	2040
ctcccactat	cctttcgctc	attacggcga	atactaccac	tccatacacg	gtgcgtgtcg	2100
tgagagcaac	atgtattcgt	tcatacgggg	ctgttgccac	gtttggaatc	tttcgacctt	2160
ccgttacttt	gtatctcttt	gaagtcggat	tcggaacggc	tctcatgcgc	tactgactct	2220
ccgcgaacaa	cgatgtcggg	gtctctccat	ccatactctg	ccattgagaa	atttcctctc	2280
gaaagggatg	tatatgagca	tctcgctttt	ctgtgggaat	ggctgatgaa	gacaaactcc	2340
tgcaaaagtct	ccccatgcac	cgtgggggaat	ggattgtgaa	atatgtcccg	gcttcacgtt	2400
gacaagatag	catccgatct	gaccgatatt	acattccgca	agcctatcga	ctcatctatt	2460
tcgatgcttt	ctctcccga	gctcagccgg	agttgtggat	gaagagatct	tcacccgaat	2520
ggtggccgca	tgtcgatccg	gagccgatg	gccacctact	gcgccaaagg	cgagatccgc	2580
cgtcggctca	cacgtgcgga	ttccatatgg	aacgccgggg	atc		2623

(2) INFORMATION FOR SEQ ID NO:1429

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1138 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1138

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1429

cgggtggaatg	tgcaaacttc	aaaaatgttt	gtatatatca	aaagaattcc	gatatttgct	60
tgcgagaagt	tttaaatatg	tataatctta	aaaaaacaga	aaatgagaaa	attctttttg	120
acagtcttat	tggcaggagc	gttttcttcg	caaatgcagc	cgatgttact	gcagtcactt	180
gttcaacgcc	taacggggag	aaacccatgt	aatgggtttt	tgtacggacg	gcaggagttg	240
tgatttatct	tgaaaataca	gggagatgag	acagattaca	acaatgtaat	gagtaagtta	300
tgcaagcagc	aaagagattc	tgcgcttcta	attttccatg	tttaaagtga	gtcaaaattt	360
gaacgcagaa	gtccttcaga	cattagaacc	caaacatcct	caaatcccat	ccctggtaga	420
aaaattaagt	gatcattgta	aggagcctta	tagtattcac	tataggctcc	ccaaccctca	480
cataatatga	aatccaatga	cgttatttcg	cattttattt	tactttctac	ttactatagt	540
ggtatctatt	ccccttctgc	tcaggaaata	acattggagg	ctttcaaaca	gatactcttg	600
ataagggttt	ccttaataaa	tgcatttata	gggtatatac	caaaactgaaa	ttaagcagga	660
cacttcacaa	aatctcccta	atagagggtta	acactgctac	agataggatc	aaaaatgagt	720
aaatttatcg	atttcatcag	cattatacag	attcacttag	agatgaaaca	gcaagaaaaa	780
aaaacattcg	cttgccacga	gtgaagtgc	aaatttccag	tactctctat	attcaaaatt	840
atattccgaa	accaagtatt	tagaaattat	ccccaaaagg	actcaataca	gtaaggatta	900
ggaactgaat	tcggtgaata	tttcacttat	gagaaatagc	cccacgggtt	ggactgggaa	960
atttactga	atgaagaaaa	gaatatcaaa	ggatatcgaa	tgtaaaaaag	ctacatggtc	1020
cttatagaga	cggattttat	caggcttggt	attcagaaga	tattcctatc	ctatggggca	1080
tatggtcttt	ggaggcttac	ccggcttgat	cattggagat	tcgagaccta	ataccgag	1138

(2) INFORMATION FOR SEQ ID NO:1430

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1193 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1193

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1430

ccgcctatga	gtagtataat	atagtatatagg	gcgagcgctc	aggtctacac	tttggaaaac	60
ttctgccgga	agaaaaagct	ctgtcccaac	caaaagcctc	cgtatagcgg	tagtcataga	120
gcgatccgcg	gataaggccc	gttgaatcga	gtgtagtccc	ctctcccatt	ttatagtcat	180
gtccgccgag	gatagcccga	ggatggaagt	acggccggta	cgttcgccct	cccgaaccgcc	240
accgaaccgcc	gctttttctc	aaaagcttgc	atcagactgt	cccgattggc	atagtctgtg	300
cttcttcatc	ggtaagcggg	gccgtcacta	cagcgcccc	gtagaagagt	cgcgatcgaa	360
agctagttaa	tcgaatcgga	ccttggcctg	cattcggtat	cgggcagcat	atacttgctg	420
ggcagatgat	agcccagcgt	accaatcggg	attcgagcat	ccgaagggtg	cggtttactt	480
cgcggttcgt	cggaagcgaa	gtccctcagc	tcttcgggca	gtggatagca	atttgcggtg	540
atctcaagcg	aatcgtagac	caaggacgaa	aagtactggg	actccagttc	agtcccacgc	600
actgcatctc	cataccgatg	gcatagggtg	tgggcagtac	acatcctttt	cgagcggatt	660
gagacttata	tcgaccttgt	accgaacata	tcgtaagcct	taattttcaa	tttttagtgcc	720
tgcagacacc	agatgtatcg	atcacccaca	gttcgcccct	catggcgctc	ctttctgcct	780
ttgaagctga	tgtggtacac	ttttctttcc	ttttcccggc	tggtaccctc	cagttgtagg	840
tgtacgattc	cagtacaccc	gtccgtatag	gacttgccat	gttactattc	catcaagact	900
gaactctttg	gcataatgtg	tggtcgagat	atctgcatat	aatccgttgt	atcagatttg	960
aggtcatccg	gtatcgaaga	cgcacgcgcg	gcacttgctt	gttggtattg	ttcggtatgcc	1020
ggaattccaa	gaggcttggc	tctctatgac	gaagcgtttt	ttctccagat	cctttgcatt	1080
atgccatctg	ctttcttata	gcgtagccag	aaaggcagct	tatccagcgc	atcgaaccct	1140
tggtatagac	tttggcctga	tagctcttta	ccatgtctcg	taaactggag	tgc	1193

(2) INFORMATION FOR SEQ ID NO:1431

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 610 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...610

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1431

acgcttttca	gttcgttcac	atcggctctct	tctgtctcat	aaccgaagcc	tgtttgatgt	60
tcagttctac	gccggacaaa	ccgtatgaag	agagcttctc	ttcgcaactgt	ctatctgagc	120
cggagaaacg	gtagcaccga	tcaatacact	tctatatgct	tccggttggt	ctcttccagt	180
agctgggtcg	gtatgactgc	gtattgggga	tactgccgat	cacctctcgc	acgtacttgt	240
gtgcgtttcc	tgaagtagat	tgttgctgaa	gagctgtatg	ctcagataga	tactggagca	300
atcgtagata	tggcaatgac	cgtaatgatc	cggcgcaact	tctctctcgc	tgtttattga	360
ggaagacttt	gcgtgggaac	ttcagcaaac	gtctgcaagg	aaggtagcca	gtgcgataaa	420
tacagaattg	atgatgaaga	gtagaaaagg	ccgaagaaat	atgcaaaactg	cccagtagca	480
aggccgaaac	ggcagtagag	agaggaggca	taaggggcgt	cgcgatagcc	acaccgggtt	540
tacattgccc	ttgcttttgg	tactgccggc	gacaatcccc	gcagcaccgc	gaagaatgcg	600
atcagcacgt						610

(2) INFORMATION FOR SEQ ID NO:1432

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 914 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...914

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1432

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cgacaccgaa atgatctttt cggaagagct tctctccgtt gataacagga ggctgcccgt    60
aatctccatc cccttttgtc cggaatcag gcgttggtgt acaaaggagt ggccattacg    120
acgacacaga cgagtaaaaa cagacactct tcataccat cggagtttca ggttatcgat    180
tcgttcgggt cgcaacgggtc ttcctgctgc acgcagaatg tcagggttcg tccaccgtta    240
cgctctaaag cgttacttcc agctgcttgt cttcgggcag ggagaactgc tccacgcaaa    300
gaccgggtccg ttcggacgtc ttccccctga tccatgccac ctgtggcagg ctggaagcgg    360
ctgcaaaaacc tgctcctgaa tcgtgtgtgc ttggccacct tttatccacc acttgaaggt    420
gatgaagtcc accgagcagg gatattcgct tgattttcga taacgacgtg gaagaaaagc    480
agcccgttgt tgcatacagt cctcgaagga gaaactgcat gctgaaatgc cgcgcaccgt    540
gtgcttaacc gttcgcttat tatgcttgta gatggtttgc atcatcagtt cacaagtaca    600
ggcgactcgt tgcccaattc cttgaagtag atgtcggacg gttcgaaggc aggcgtcctt    660
ctccggaata caggaattgc gcttcggcct gtcctggctg ccctcggcat agccggagca    720
agctccgntc tgccccgttg gcacaagaag tctttcatct ccacattgag tttctccggc    780
tcttggcata cttcacattg taggagtaaa atgaaccgtc ttcacaaatg accacagggt    840
ggctctncgtt tcaaaattcc gtacggcagc cttgacacgc agacgttttc ggcatcttcc    900
gcttttcggg tatc                                     914

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(2) INFORMATION FOR SEQ ID NO:1433

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 619 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...619

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1433

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gtaccggccc tcgatcggta ttatgtcatt gacgtagcta tttacattct ccagatagga    60

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agttattatac	gtcnatgcta	cctccccacgg	gaatgcccgc	ttctcgggtga	cgattatgga	120
taacgtttgt	ccaccagccg	gttctttata	cggtcaagat	gacggacaaa	ctccttcaat	180
ccttcttccg	aacggataca	tcttgcttgt	agccactgcc	gtcttccttg	agcgttcggt	240
tatcctcagc	gtaagtgtaa	tccccgcatt	cagataagaa	agttcgcgga	gacgttggcc	300
agtatggagt	attggtattc	cgtaacagag	aagatagagc	tatcgggttg	aactgaatag	360
tcgtccccgt	acgctccgtg	gagcctatca	ccccacatca	tgcaagggtt	tgccacagct	420
gaactcctgc	atatggatct	tccattacga	tacacctctg	cacgcaaata	tgtggaaagt	480
gcattcacac	agaaacgccc	actccatgca	aaccgcccga	gactttgtat	gaacccttgc	540
aaacttacct	ccggcatgca	atacggtcna	aaccacttcg	agagcacttt	accttctttc	600
tcgtgatagt	ccnccggaa					619

(2) INFORMATION FOR SEQ ID NO:1434

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1044 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1044

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1434

cgggagggtta	tggtttgcgc	catcagttcca	tcgaagaaag	cacagtcccc	cgtatcacga	60
attgctgctg	catcagcatc	agggagctga	cgatgatatg	gcgataatcg	catatgagggt	120
catcgtatcc	gcattgcttt	ccctgtaaag	agaaggccgt	acaatatgaa	caagaaggaa	180
aagatgaaag	tactgcaagg	cgtttgagc	gcaagatgag	cttgatatgc	agtgtctatca	240
cctcgctatg	ataccatgct	gacgcacaaa	attcagattg	tggtaccgct	ccgtctgttg	300
gatttggtgc	gtcttttagc	atagcgatgc	tgtctgaaat	accctggctc	gctatatatg	360
ttccggccaa	tatcgatgcc	atgcagatcc	atcgatatat	accggaaggg	acgagacgaa	420
gcggaacagg	cagtccgacc	aggcacgaat	ccgggtgattt	ctgtggcgag	catgagggtc	480
atggcaccga	gacgatgata	tagaatcgga	gaccatcgcc	cagtatgcgc	ttcagatatg	540
agccaagagc	atatcggtca	gcgtaagcat	cagcagggtg	acgaggggcac	agcgaaatcg	600
gctgccccctt	cttctatccc	cgtcacaatg	ctgtaagcag	aaagaggaaa	acgaagacgt	660
agtaattgat	cggattggcc	aatgggggaa	tataaggtag	tgtgctatgg	ctttgcgcgg	720
tatcggcagc	tgccgtagta	gttttcattt	atatagttga	gcggttgagc	gaaaaggcgg	780
atcacagacc	ggcaagcatc	aggaaaggaa	tgagtccggt	cattatttgc	atagagcaag	840
agccggaaaag	ctttccttaa	ttatgatcgg	aaagaaaaga	ccaaaataaa	aaggctcaca	900
cctacgaaca	ggaagtaaat	ggcccaaat	acattatggc	aacgctctgt	gccgaaatgg	960
tggagcggat	cgtgcgccgc	attcgtgtcg	gaatagttct	cgtggtacat	ggtctgtata	1020
aatctcgctc	aaagaaaccc	cgaa				1044

(2) INFORMATION FOR SEQ ID NO:1435

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 471 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...471

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1435

tctacagact	tttctcattt	tcttccgatg	ccgagattac	cttggaggca	atcccgcagca	60
tctgaataca	agctatgtac	aggagcttcg	tactctgcga	tcaatcgaat	aagtatggga	120
gcacagagtt	tccacgatga	agacctgact	tcctcaatcg	tcggcacaat	gcccgccaaag	180
tgctcgaagc	agtggaaacct	gccgcaatgc	gggacttacc	aacctgagta	tcgatcttat	240
ttacgtctac	ccgggcagac	gcctgctcgc	tggcaagaaa	atatctccgc	agtgttgctc	300
tctccccacc	ccacctgtcc	gctaccatct	gatatacgaa	gaagaacccc	cctgacacgc	360
ctactccatg	caggaaaggt	gcgcgaagtg	gagaggaggt	aagcctcgaa	ctcttccgca	420
tgcttcgcga	acagctgaca	gagccggtat	gaacactacg	agttcaattg	c	471

(2) INFORMATION FOR SEQ ID NO:1436

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 644 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...644

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1436

cgcgttctac	gccgaaatct	gcgatttccg	cacggcgaag	gacatcgggt	cgaccgtccg	60
gaaaagcatg	aaattctgca	tcacattccg	ccgacgccga	gcaggaagcc	tttatccaaa	120
agctgatgga	atttgcccg	accggtatgc	cgagctattg	ggtcggggaga	aactctccga	180
tcgggaagaa	aaggcgagat	gcttatcgcc	accgactacg	cccgaagat	gtcgctcgac	240
atgcgatgat	ctctccttct	tacgaagacc	atatcgacaa	caaggcttcg	cactcgcccg	300
actgatccac	gattattacc	ggaaaatatga	acgggagaaa	ggccccagtt	tgttttctcg	360
gatttaggca	cgtacaagcc	ggacgagtgg	aagtttacag	cgaaatcaaa	cgaaaactga	420
ccgatgatta	tggcatccct	ggtcggaaat	ccgtttcatt	caggaatgca	aaacggaggc	480
tgccaagaaa	cgatgatcgc	gggcatgaat	gccggcagca	tacgtgtcct	gttcgggtca	540
ccgaaatgct	cggaacgggc	gtcaatgccc	aacagaaggc	tgtggcgggc	atcatcttga	600
tacgccctgg	gtgcccagtg	ctctgagcac	ggatgcagca	tcga		644

(2) INFORMATION FOR SEQ ID NO:1437

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 530 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...530

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1437

ctaagcggaa	tgccgacctt	cggtatcgag	ctgggcgaca	tcgaacatcc	gaatacacgt	60
tggaggagat	tttccggtat	ttggccgatg	cggacaggcc	ctgtatcggt	gccatcgatg	120
agttccaaca	gattgcgaag	tatccgggaa	gaatatcgag	gctcttctgc	gcactcatat	180
ccaaaagctc	cgcaacgcaa	tttcattttc	gccggcagcg	aacggcacat	gatgcaggag	240
atgttgccctc	ggctgcacgc	ccgtttttacc	acagtgccga	tatgctggag	cttaggccat	300
cgaggcggat	gtttatatcc	cctttatcgt	agggcatttc	gagaacgccg	atcgcacgat	360
ctcgcccgat	gatgcacacg	ggtttaccgg	ctttcaaagg	gcatactttc	tatatacaga	420
agacctttta	cgaggctttt	gagacacgcc	cgagccgaag	tatgtaccgg	ggagatattc	480
gagtcggcca	cgataatatg	atagcatcga	acgataccat	attccgcgag		530

(2) INFORMATION FOR SEQ ID NO:1438

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 339 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...339

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1438

ttatcatggt	aaccctttta	caattattcc	tatgcagaac	ttaatccgta	agagccgggt	60
catgaagatc	ggcaagcatg	gagagaccga	agcatcngca	cggttcacaa	cattttattg	120
tacttttagg	cctcathtag	aacgctagga	gcaagaaaaa	cagttgcana	cagagtatat	180
cgagagcgac	atcnagcgct	ggaatgggac	gagcatattc	nccgtcgtcc	cgggatgtat	240
ntcgggaagct	gggcgatggc	actcatgccg	atgacgggtat	ctatgtgctg	ctgaagaagt	300

gctggacaac tctgtggacg aatttgtcat ggggtgccgg

339

(2) INFORMATION FOR SEQ ID NO:1439

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 591 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...591

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1439

ccaaaaggaa aagagaaggt gatatgcttt gatcatgcag aaagagggca cagaggtcgc	60
ctgtgttttt ttctacttt tggattgcat aatcgatagc acaaaactgca tatggatttc	120
aactttctga tagtttccga tgaggtgaag atttccgccg agagatagcg atcgactccg	180
aagctacctt cctcgactcc aaaatgcgat tctggactcg gtgggctatt cgcacagcga	240
gctaagtctt ttttcctctg cgatgaggac tggcacaagg ggcaggagat tacgtgatgg	300
agatggacac ggcctcggat gaggactcgt atgtgatgga gaaacacgct tggaagagtt	360
catcgaggac gaacaccaac gtctcgtctt cgattcgact tgatgacgga gcgttacttc	420
tttatcgaag tgatggatat ataccgggca aatcgctctc ggagcctaag ctccttacgt	480
cggaaggatt cctccgcaac aaagctctct ggacgatctg atggatccga ctgccattca	540
accaagcaag cccggggatt ggatctggaa naanacttct tcggcgacgc g	591

(2) INFORMATION FOR SEQ ID NO:1440

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1030 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1030

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1440

cgttcggctt tgagcttcca cagcatcctg agagagtagt agttccacac cttaccccca	60
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ttcatcatatc	gacctgaagc	attgatccga	ggccccgattt	gaagacgatg	tcgttcatat	120
ctatccttcg	cttcttcaga	ccgcataatc	tattatagcc	tgcaagccga	gacaagggcg	180
tttattaagt	tggcgcgtcc	gtaataggcg	agtatgcggt	tctctcccat	gatagggaca	240
atatacgaagc	tatactgaca	gccacgaggt	cgagcaaaag	aaggagcttg	gattgggcaa	300
attgttgctc	cgagcatagg	cttgcataaa	cttgaacccg	actcacagcc	ggagagatgt	360
tcgtaaggat	acgtattgtc	agctcttttg	gctccagcac	cgcaacggca	tcaggtagcg	420
tttcatccgg	attgtgatgg	tgcagataat	aaaatcaatg	tcaagcgact	tggcgtagtc	480
caccttttcg	cggctttgat	accacagtcg	agtacgatta	tcagtttcgt	tccgagagat	540
gagccaaatc	aattcctcga	taagagatac	cataaccctc	atcgtaccat	ccggaatgta	600
gtaatccaat	tgggtttcgg	agcagcccgt	ggcgcgcaat	acttatagac	gagtggccact	660
gccgtggtag	cgtctacatc	atagtcccgt	aaatcatgat	tttttccttt	cgcctacttg	720
ccctgttcag	gcgagtacag	ccttgtccat	atccttcata	aggaaaggat	cgtggagatc	780
ctccatcttg	ggcgaagaa	acgcttagct	tcctctacgg	aagctattcc	cctcgtgcca	840
ataggcacc	cactacgggc	gcgagcctta	gctcccga	gatattgtcc	cgagggaacg	900
ttcctctcgc	gtaaacggct	ccaaattcca	gtgtaattca	ttatatgtca	tttttttact	960
ttttcaattg	tgaatagcaa	aagtcgaaac	gatgggcacg	ccccgaactt	tcaacctgna	1020
tttaatttaa						1030

(2) INFORMATION FOR SEQ ID NO:1441

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1697 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1697

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1441

tgccgaatcg	ttcaaatctg	gcggccagag	tttcgtatca	ctccggcgca	cacgcaggta	60
gtggaattgg	aatgggcggc	taagctcgtc	ttcgttaaag	cgtagtgggt	ggtgccatcg	120
atatgcgttt	catgcctgcc	atactgaagg	catcatgtcg	cgcatggagc	agggtccgct	180
gaccggttcg	tatgctgcga	tgtgcgcgta	gtggtttacg	atggtaagat	gcacctgtg	240
gacagaatga	agtatcgttc	atgctggccg	gtcggaatgc	tttcagcacg	gcttcaaaga	300
agccggcccc	aagattcttg	agcctgtcta	tgatgtggaa	gtacggttcc	tgccgattat	360
ttgncgatg	tcatgagcga	tatgcaggga	cgcgtagccat	catcatgggt	atgaacagcc	420
gcaagggtta	tgagcagctt	tggcgaaggt	gcctctgaaa	gagctttcca	actattccac	480
ttcgctcagc	ctattacagg	tggacgtgca	tccttcacga	tgaagtttgc	ttcctatgat	540
tggttcctgc	cgatgtacag	gagcgtctgc	tgaagaata	cgaagagcga	ccaaagacga	600
agcatagtct	ctgcgcttcg	atcgattacc	aatccaacaa	agaggccgcg	ccaacagggtg	660
gcgcggcctc	tttctcatgt	tgtgagccga	gaaaagctgc	tttctctga	ttggaaattt	720
gaggattgct	ttcgttcgtc	tctacctttt	tccactcaaa	aggccttcgc	ctttcgtcaa	780
gattttccgac	tttaagtgtg	atccttgcg	ctaagaatgg	cggcttttgc	tttgcttttg	840
cgaggttgcg	tggacggagg	agtatggcga	tcgttgcgag	agaagtagtg	cgatcgaaca	900
gcttggaat	gagatccggt	cgtccgattc	gtgtagctcg	cgacggatct	tgtcggcttc	960
ttcccgtttg	taccagaaga	aaacatgtgc	tggcgcacct	tttcttcttt	cttgatggct	1020
gtatatacag	ctgaagcgta	taaggatggg	agccgggtgta	gtacatttcc	gtcgctaagt	1080
catagggtgta	ggagtaaagt	cctgtatctg	ttccagtttg	aagtcgactt	ttttgtcagt	1140
atcgccaggt	cggccatata	ctcttcggta	cagccccgggtg	gctggatatg	aaataaggga	1200

tgagttgctg	acgcagccca	tgtgctcggt	gatacgttgg	aaacgtttgg	tgaattcggc	1260
gaactgccgg	aaagaggcct	gcgcatcaga	ttgagtagcg	gatccgagct	atgttcggga	1320
gctctttcag	acgtcctgat	acatgcttta	cgataagatc	ctccgtatat	tctccgcagc	1380
tttcttcagt	accttgtctt	tataattatg	aaggaggaga	tcattcttac	accactgccg	1440
ataaagctct	tcttgatctt	gggattcttg	cgatccttct	caataaatcc	agcagaggac	1500
gatgatcggc	attcagattg	ggcacacatt	cggatgaatg	caactcggct	ttttgcagcg	1560
tttgcagacg	agaggtcgta	gccctgcatt	ttgtacatat	tggccgaagg	gcctccgcat	1620
cgctcaggta	ccccctgaaa	tcctccattt	cagtgatctc	tttcaactcg	ggagtacgga	1680
cgcttcgctg	cgtgagg					1697

(2) INFORMATION FOR SEQ ID NO:1442

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1158 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1158

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1442

tcattcttgat	cagaatattc	tcctcctcaa	tgccttccgt	ccggtccgaa	gggaaaagag	60
aggtaagaga	tgattattgt	tggttcttat	tattgtaatc	ttgggggtga	agtctttcca	120
aatcttcagc	agcttttctg	tagcttctgc	agactgcctt	ggaactcgcc	gccggcagca	180
ttcttgtgtc	cgccgcaccg	aagttctcgg	caagggtggt	caccggatag	ttgcctgtgg	240
agcggatgag	agcttgcatt	gatttttgtc	ctctcgagg	aaacatacag	cctcatccct	300
gcaatatcga	ggggcagatt	ggccagacca	tcggtatcac	ccgccgggtg	tggaatcgta	360
ccagctcctc	tgctgacagc	gtgaagtatg	ctcgccatt	tcggcgagca	aagtcatttt	420
ctcgtacagc	acataaccct	gacctcctc	ttgccttccg	aattttgctg	aaaggatttg	480
cggatgatcg	gtctttgtcc	gcaccggctc	gcataagatc	tgctacgagc	agataaagac	540
cggatcggaa	gagctgtagg	aaaatacgcc	cgtatccgtc	agtatcccg	catcaaagcc	600
gtggccgcat	cttgggtcag	gtaggactcc	atgcctaggc	cttggccaaa	cgcaagacca	660
actccgaagt	agaagacagg	ggggggagct	gaagctgaga	gtgaagatat	ctgccggata	720
gagatgatga	tcgatagcac	tttgggggct	gacgaactct	ccaatgcgct	ttgcagtcct	780
gctaccgatg	tggagcattg	aaatccatgc	agaagaccag	atcggcttca	gccatgcctt	840
ctccgcctcc	gaagnatgag	tctcgtgcac	tattactttg	ttgctcccgg	aatgcagtac	900
aggtattggg	gaatatcatc	aggtacgatt	aactgatgtg	ggacntgcct	ttttctctca	960
gcattggcagc	aaaaccgata	tgcttccctac	cgagtcgccc	tcgggagccg	tatgcgagat	1020
cagagcgatc	gctctgcctc	ctctaccatt	ttacgcaaag	ctgttgccgg	agccggatga	1080
tttttattcc	tgccataact	tttccctctt	agctttttct	tcgctttttt	tcagagattc	1140
gtaggggatc	ctctagag					1158

(2) INFORMATION FOR SEQ ID NO:1443

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 914 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...914

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1443

gaactaaact	tctcactcat	tattcaacca	atagaaaaaa	cagataagaa	ataatcattg	60
ctatggctct	tacaaaaact	tcaaaactct	attacaaagt	ccacgactac	atccttatta	120
ttctgggatg	ctccatctat	gcttttggtg	gacgggcttc	atcctttccc	aaggaattac	180
cacgggagga	ttggccgtat	ctccactctg	atcaagatcg	ccacgggtat	tccggctgcg	240
atacctacaa	tatcatcaat	ctgggattag	cggtagctcg	tctgatcttc	ttggatggcg	300
tttcatggtc	aagacgggtca	taagcgttgt	cataatggcc	atttcatccc	gataggtgaa	360
gagtatctgg	tcgtcacgga	gatcgtcaat	gggtaaaagt	ttttacgcct	cttctactgc	420
cgaatgaacc	ggccttagct	cggatgatcg	ctccattctt	agcggctctg	gtattgcat	480
agtattctcc	tgaactccag	tacgggctgt	accgatatta	tcgtagccat	catgaacaat	540
acaagaacat	gtcgttcgga	cgcgccattc	tactgggtgga	ctgtaccata	ttttgtgctc	600
gtatctggtc	aatgtctaca	tcgccggcaa	gtcacctccg	acgctttcaa	cctgcttata	660
tattcggcca	tagaggttat	cctcgttcta	cagtcttggg	attggatatc	caattcgaat	720
agacagtcgc	tgcaatcctc	atcttcagtc	tcaaaaacga	agagctcagt	aatgccattc	780
aagacgcata	aaaagggggt	gtaccctgct	ggatgcgaca	ggaggctatt	ccgccaacct	840
tgtaaagttc	ttgtggctgt	tgcacgcaag	acacaaagcc	taccatccac	agaatcattc	900
aggagatcga	cccc					914

(2) INFORMATION FOR SEQ ID NO:1444

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 601 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...601

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1444

cggtttttga	ttagtcttct	gtagccttgg	ccaagaatat	aatagtcgtt	atcttttggc	60
ttcaggcaga	tttttgggtg	atagcagacc	tttatcggcg	gtcttgctat	caccctcaat	120
ttgtggcttt	ttctcggttt	ttgtcttatt	cggaaaaaaa	cctttatgtg	tttagtagag	180
tcttctgtag	atacctcgat	ctcatctaca	gtaagctcta	cgtagttgtt	ggcgagcaat	240

ctttgtgtgt	cttaagcact	gattccgcaa	agcctcttac	ctcttcgtcc	ttcagccgta	300
ttcgtgcaaa	ggtttcttgg	taagaaggca	tccgagaagt	tcaccagctt	cggatatacg	360
tattcgggct	ggcagttcag	tatcttggag	agttccagtt	gagttcgact	atatagccga	420
aaggattctt	cttttggtat	atttgaatac	ctctgtgaag	aactgatagt	ttgcttctcc	480
atgcggcacg	gatagtgcct	ccaacgggta	ggatagtgcg	tggacggctc	tactccgcat	540
tccgaagcta	taccggcata	gttgctggcc	atgatcattc	tccagcttcg	agcggattca	600
g						601

(2) INFORMATION FOR SEQ ID NO:1445

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 596 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...596
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1445

ccttacaggc	aagaaagccc	gtatcaaaga	gcgtcgcgta	gctctttctc	taaagactaa	60
tttgcttata	acggttatta	ggggggctta	tagagataat	cctcattccc	taagtattat	120
gcagagaggg	tgtatcgaaa	attgattcgg	tacacctctc	tctctttaac	ccagattggg	180
cattagagat	taacgttaga	atcaaggcat	tacttattac	tttcaaggaa	aaagaattat	240
gtccgataag	catgtatttc	acatcacccg	attgggtgaga	tgaaattggg	atgcgatgtg	300
atttctataa	gaaggtaagt	ggcagttatt	aagcagatta	caagaaaaat	ctctaataac	360
ggccattagt	ttttttgaat	gcaatccact	ttttccatta	acataggctc	ttataaactt	420
gaaggattaa	gcctaattta	gctcaccaat	tggttggtga	gacccgggta	acacctctgc	480
ttgcaacaac	tcccagtcct	tcttcaagac	acgctcaata	agcttgagga	gaaaaaagtg	540
gactggctgt	gcgatagggt	cttctgnaac	aacagggtat	cgaatcctac	aaagca	596

(2) INFORMATION FOR SEQ ID NO:1446

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 956 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...956

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1446

ccatcattgg	ttacagtccc	gcttttaggg	ttaggcatca	atccgcgagg	cctaaaacac	60
gtcccaatgc	accgatttta	cccataatgg	caggcatgtg	atgatgacgt	ctatgtcagt	120
cccaaccagc	ctttattttt	tctatgtttc	gtcaagacct	acatagtcag	caccagcttc	180
tttagcttca	gcttcttata	aggagagcac	aatgccagaa	cgcggatctg	ctttccagtt	240
ccgtgggaag	cgttacaacg	ccacgcacca	tctggttagc	ctttcggggg	tctaacccaa	300
gcgcacatca	atatccacag	atgcatcaaa	attggtcgtg	gtgtctcttt	caccaaggcc	360
gatgcctccg	atattgtgta	tgctttcccg	ggtcaatctt	gctaaaggct	aacttctgtt	420
tttttgtag	tttgctcatt	tgagtaagat	taaattat	attccgggaa	gtccccttta	480
atcgcgatac	catgcttcga	gcagtagcgg	ctaccatttt	catggcagct	ttgatatcga	540
gcaattcaaa	tcgacaagct	tatcttctgc	gatcgtacgt	acttgctcca	tgtgatttct	600
gctaccttct	tacgattagg	ttctgcagaa	ccactctctg	tttgctagct	tcaaggagtt	660
gaatagcaac	aggaggagtt	tttacgtaaa	atcaaaaagac	ttatcggcat	agtacgtaat	720
tactacaggc	aatacttgcc	ggctttgtct	tgggttctg	cattaaattg	cttgcaaaac	780
tcatatgttg	atgccctttg	caccaagtgc	aggcccaacg	ggggtgaggg	attgctgcac	840
caccttttat	tgcaatttga	tttgtccagc	aacttcttag	ccttggtcta	aaataaaaat	900
tcagacacac	actatatcaa	tgcgagagag	aagatccgaa	cacaacctca	tctttc	956

(2) INFORMATION FOR SEQ ID NO:1447

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2084 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...2084

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1447

ctccaacgat	tcggcctgga	tttgctgggc	gatatagtca	tggtgctctc	caccacttta	60
tccataatat	cgttagacaa	gagaaggaca	tccacctttc	cgacacttcg	aaaccgcttt	120
gcttgcgat	attctgcaca	cgattcaaa	ttcgcgagcc	agtccttcgg	agcgaagctc	180
atctgtcact	gtaatacaag	ggctacggtc	agattgcctt	cgttggctac	gaagccatcc	240
cggaaatctt	ccgagacgat	ctccacatcg	gccaatcaaa	gctctaccgg	agtccggcca	300
cttccatccg	gaaagtgcg	gccttctcga	gggagcgtat	ctctcctgcg	tcatggccgt	360
tacagcttct	gccaaagcct	tcataccttt	gcgtagcgtg	ggccgagtcg	tttgaagtcc	420
ggtttgattc	gtttgaccag	atacccatgc	tgatcatccac	gaatcgcagc	tctttcacgt	480
tcacctcact	aggatcagcg	gctgtacgga	ttcgatacac	ctgcgctgct	catcgtctaa	540
gccggtatca	tcagtgtagc	caatggttgg	cgtaactttca	gattcacttt	cggcgaagtg	600
ccagcaccat	agacgaaatc	tgctgagcca	tctgcatctc	tgttccagtg	cacgggtccac	660
ctgactttga	tccggccggg	ggaagacgcc	aagtgcacgc	tttcgtcttt	gcccgtcaga	720
tctcggatca	gtcggcagca	tagaaaggac	tgatcggagc	catcagtttg	gatacggtaa	780
gcaagaggta	taaagcgtct	gataggcaga	gagcttatct	tcgggtcatat	ctctgccag	840
aagcgacggc	ggcttgagac	gcacatacca	gttgctcaga	tttcggagac	aaaatcgctg	900
atggcacgac	cggcacgtgt	aggctcgtag	tgctcagttg	atcatccact	tcacgaatca	960

atgtattcag	ttcggaaagt	tccagcggtc	gatctccggc	ctcttggcga	aaggaatgct	1020
ttctttctcc	ccgtaaaagcc	gtccaaatta	gcatagaggg	caaagaactg	atacgtatgt	1080
ataaggtagc	gaagaatttc	ctgcgtacct	cttccactcc	gtccgtgcga	atttgagatt	1140
gtccacacgt	gaagaattgg	tgatcatata	ccagcgagag	gatcggagcc	gtattttctg	1200
atggtctcga	aaggatctac	ggcgtgccga	gacgcttgct	catcttattg	cctttcttat	1260
ccagtaccaa	gccgtggata	ccacaacttt	gaacgaactc	gttcctgata	tcacgtgggc	1320
tatgcgtgaa	gggtgaagaa	ccatccacgc	gtctgatcca	ccccttcggc	tagaagtcgg	1380
cagggaagac	ggaaccgtcc	tccactcggt	cgcgattctc	gaaggatagt	gcacgtgggc	1440
ataaggcata	gcacccgagt	cgaaccatac	tcgatcagat	ccagctcgcg	gcgcataaggc	1500
tgacccgagg	gggagcaaat	gtgatcccat	ctacaaaagg	cctatgcagg	tcgatcttgg	1560
catagttccc	tcggtgtaga	caccgggctt	gaagcctgcc	catgggttgc	gctccatata	1620
ccggctttga	cggccttctc	tatctcggtg	tacagctctt	cgaccgaccg	atacagatct	1680
cttcggaacc	atcctcagta	cgccaaatgg	gcaatgcgct	ccccagtagc	gactgcgaga	1740
aaggtttccaa	tcttgaagat	tctcagccat	ttgccgaagc	gtcccgtacc	gggtgctttcg	1800
ggttttccaat	atacttacca	ttgttggcta	tcacctcctc	tttgcaggct	gtcgtgcgga	1860
taaccagcta	tcgagcggat	agtaaagaac	gggcttgtcc	gtcctccaac	atgtgggtag	1920
ttgtgtgtca	tcttttcgat	gcggaaaacg	cgattctgca	cttcagcatc	acgcagagtt	1980
cgacgtcgag	agtctcgctc	ttctccgtct	tccggcatcg	tacgcatttt	tcacgtagcg	2040
gccggcatat	acgtcataag	cggcagatcc	atgtgcttct	ctac		2084

(2) INFORMATION FOR SEQ ID NO:1448

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 408 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...408

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1448

gataatagcc	gcacgtccgt	taagcacata	ttgacgagac	ggcaagtttc	atcaacgggtg	60
tgccgactac	tcgacacgat	gcagagctga	aagccggcac	agggtaatcg	tgcatcggac	120
acagctaccg	gaagagctgc	gccatccttg	gtgcggatca	tttggcagga	cgactatttc	180
gtcctgatcg	agaagaagcc	ggagtctcca	ctgtagccag	tggcgtcaat	aaggacagga	240
ctgcttgccg	atcgtttagc	atcatctcaa	gcaatatgat	ccggaggtga	aaattttatg	300
ctcaacagag	tggacaaaaga	ttctgccgga	atgggtgctct	ttgcaagaat	aaagagggtac	360
aggggtttgt	gggtggacaag	tggtccaagg	tctattggaa	cagcgttt		408

(2) INFORMATION FOR SEQ ID NO:1449

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 348 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...348

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1449

cggctgattt	catagtttcg	atcatcacgg	agctttttct	catgcaaaaa	agaagaaacc	60
ctgcagcatc	tcaatgacag	cctacatgtc	ggtcacgagc	tttgcttcgt	tccgacaggc	120
tttctactta	cgtgggggac	gggttntct	acaactatgt	cagtgccaat	aaggtagtgg	180
ctaattgtca	taaactcccc	aacgcctctt	tcgtaggcag	atggtcggca	ttgacgactt	240
actggcgctc	ggatccctct	catagagcga	ctgctgagtt	cttctcccca	tcgtgaatca	300
ttcttacggt	cagccccgta	cgtcactctc	gcgatggagc	tgtggaaa		348

(2) INFORMATION FOR SEQ ID NO:1450

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 929 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...929

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1450

aggatccccc	gatgataagt	gtgggacgct	cgcctctctc	cttggcttcg	tcagggcctt	60
gcgaatttca	tccgcatcgt	tacctgcaat	ctctattact	tccaacccca	tgacgatata	120
ttcatggctt	ccgtcttcgc	ttgccactct	ttcactgtcg	tagaaagctg	tacgtcgttc	180
gagtcgtaga	acataacaga	ttgttcagcc	caagggtgtc	ggcgattcgg	ccggctcctt	240
gtgatcttcc	tcctgtattc	ctccatcgga	aatgtaggca	tagatcgttt	ggctatcatc	300
cagccgaagc	gatgagcgag	gaatttggct	gcgatggctg	cacgacagca	taggtgtggc	360
cttgtcccaa	ggggccggat	gtgttctcca	ctcgtgcatg	acatctactt	cgggggtgtc	420
gggtgtgatg	ctgccccatt	gcggaatgct	ttgaggtcat	ccatggagta	cttgcccgtc	480
aatgccagct	agcatacagc	atcggggaca	tatgtcccgg	atccaagaag	aagcgatcgg	540
accggcccat	tgcgggttct	tcgggtcaaa	gatcagatac	tcggagaaag	tacgtttaca	600
aagtcgcgtc	cgcccatggc	tccgcccggg	tgaccgcttt	ggctttttcc	accattgcag	660
cggccaatac	tcgaatatgg	tccgcacctt	gttcacacgc	tttttgatc	tcattccttc	720
taattatggt	gaggtagatt	atatcttaaa	ttgcgattgt	cctgtgaccg	aagacatctt	780
ttccacaaa	gtaagaagtt	ccgttcagag	cacgtgggtt	actatattaa	ataatgatct	840
ttcggaggtc	aagctttgtt	cctctccctt	taagtgcact	gctcaagctt	ttgatttcaa	900
aagacaactg	gtcggagtc	ggggatcct				929

(2) INFORMATION FOR SEQ ID NO:1451

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2216 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2216

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1451

gtcgaatgatg	gcagcttctc	ccatcgaagt	gatgtagtat	gcaccttggg	aagcagcctg	60
tgtaaatctg	ttctactttc	catatttgtc	gaatgttata	ttgcttgtct	gtcagtgcaa	120
agatccaanc	ccacccttcc	ggctcgtcag	cttactttta	gtcacacaaa	tgacgcgaag	180
tatacgagta	tggtcttttg	agaatgatgt	atagcccat	gacgaagacg	aaccagccga	240
atgccgcttg	agtttgtctc	cgtcaatata	ttgggagagt	ttcattccga	tgaaatcccg	300
atgatggcaa	aagctgttac	cgagaggaga	agccccagt	cgaacctgcc	ggattattct	360
ctcccagaaa	tcccagagc	gatttggctg	attgattaca	agtgagggtgc	cgatagcttg	420
tttcatcggt	aggcctccga	gaagactaag	gcagggatga	tcaagaagcc	tcctccggca	480
ccgacaagcc	tgtgagcgta	ccgaccacaa	ttccctcaag	gaggatcagg	gcataacggg	540
ctgtttcggc	ttaggggggtc	tctgtgatgc	tttctcctgc	attttagcgg	tctgatcatg	600
ctgacggatg	ccgtaagcat	cagtacggca	aacaagacat	caggagcatg	ttccggctga	660
tcgcaaaact	gcccggactc	aatacaactc	cggaatcgcc	ggtaccagat	aagctctcgt	720
caggaataacg	gcgaaatcga	tggcaggccg	aaaagcactg	cagtacgaac	gtccaccagc	780
gaacgcggaa	gtatgagata	ctcccgaaca	cactggtagc	tcccacgata	aaagcgaata	840
ggccgtgccc	aagacagggt	ctatgcccat	cagatatacg	agacgggaac	ggtgaggata	900
ctccctccgc	caccgataag	gccgagtgc	agccgattaa	aatagatgcc	aagtaacctg	960
ctataagcat	acagtctccg	ttttatgatg	aggcaaaggt	catcatatcc	ggaacggcgt	1020
acagctactt	ggtcacataa	gggtgatttt	gttacgccct	aagcgaacga	tgccggatct	1080
tccaattggt	tgagcagcct	tgatactacg	gccctggctg	gtcccaatca	ttagccagtt	1140
gttcgtgcgt	gatctgtata	gtattaccct	ccacgattcg	gctttctttt	gaatgagggc	1200
cagtaggcgt	tcgtccatct	tcttgaagca	atggcattca	ccgtatctaa	tagctcctcg	1260
aatcgcttgt	gatagagcgg	aaagatgtag	ttgagccatt	cgggatgctc	cttcataaag	1320
aggaaaacctt	atcgacgggc	aagaaaagaa	tctcggcatc	gtcttcgatc	tcaccttcac	1380
cttgcttgtc	tcattgtgca	ggcccccaag	aaaagacatg	aacagctttc	gcctgccttg	1440
atatagttag	gcaggatttc	tctgccatcc	cttcggtagc	gattaccctc	atgacccctt	1500
tgataacgat	aggaatggac	ggacatgtgc	attctcattg	aggataacgc	taccggcctt	1560
gtagacctga	ggatgccatg	cttatacagt	ttgtccacaa	gctcaggcga	agagcgaact	1620
cggatatatc	ttctatctgc	ttcataggag	caaacataat	aaaacagtac	gcaaccgaaa	1680
gaaatggaac	gaaaagcctt	tcgctctatc	tcttccctgc	gcaatttaat	gcttgcatth	1740
tgttttattct	tttttccctc	atattaccta	aaaaggatga	tacataggcc	caaaaaacacg	1800
agcgaaaaaa	aattcaacaa	cgaagatgtt	actcggattt	tgatgtgggt	cccctgcgct	1860
ctgtacattc	cgtttttcaa	gtataagcac	agcagtcatt	ggcaagagaa	agaatttgac	1920
taattttgtc	ttccgaaaag	cattgctccg	aacagtgaat	tccccgtgta	ttgaagttag	1980
caattaattg	aaaaaagaga	gtattatata	atatgccaca	catccataaa	ctaccgacta	2040
tgccccatca	cctgacataa	gcccgaacag	gctcctattc	ggatccttca	gcacagcagc	2100
gacagtctcg	atccgatccg	agattgtaga	gaggaatcgt	gcagctacat	cgaatccatg	2160
caaaaggata	gcactcttggc	ataggcccta	ccacatacat	atccgactgc	accctg	2216

(2) INFORMATION FOR SEQ ID NO:1452

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 544 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...544

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1452

cggtaaatga aatatgaaac aaaacgggta aaagcacatc tttgtttatt ggattatcgt	60
acacaaataa gaaaattata gatatatatc tatcgaaaaa agattatcgg attgacaaat	120
cggaaatttat attataataa atcctatgca aaaaatattt tcattttatt ggagtatatt	180
tgccgatata aataggacat gagggaaata acggatattg ctgtagccga atctgggtgat	240
agtgattcaa agagcggcct gagactaaaa atgctaaaag ctggctgaaa agtgaagcgc	300
ttttgccaac ggaataggag gaacgctcta tttcggcgtg gaaatcgac gcgccggata	360
attgggtgtac aggatattca actgacaatc agaaaattac agagctgatt gtggctcgta	420
tcaccccgcg tccgggtttt ggtgcatccc cctgcaacag aaaggaaaag atattctggc	480
tgtcagagtg attccggaaa acatactcct ttctactatg ttcacgatca tcaccatacg	540
cata	544

(2) INFORMATION FOR SEQ ID NO:1453

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 454 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...454

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1453

gaggactgat tcagagaaaa acagtcctct aacattattg tagcatttgc atttattaca	60
atcaatgtat aatcattttt gccaatcac acttttactg agagcaaacg gtatcgctca	120
tacgcatagc ttttttaatg acataaaagg gatattctatc gttacatctg tttcccatct	180

tctaaaatcc	gagtaatccg	aaaagattgt	aatggccttt	ttatgtatat	tctacatcgn	240
ggcatatgtt	tcgagctcgc	caaaaatttg	tagaacctat	ttcttcatca	agggtctctat	300
tggatttatc	aaccaattcc	gctttgaaca	tctctctcaa	gcgtccgcca	ttacgggctt	360
cgctttcttg	tggaagaaaa	tactgtctng	atagcattat	accttttggt	ttaagccaat	420
tggaacctna	aaatttagcc	tggcagaaat	acna			454

(2) INFORMATION FOR SEQ ID NO:1454

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1189 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1189

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1454

gtatgccatc	cttggcagca	acggccctga	tacaatcctt	ttcggtatca	gtgaaatcag	60
cgtcccgggt	gcatcgggat	ccatcgtatt	gagtaaaacta	ccggatatct	ttctccttgg	120
ccggcttgat	acaggtcgga	tggaggattt	ggctccgaag	tgtgccagtt	ccgcagcttc	180
ttcaaaatgg	anacgggaac	gggtgccgta	acgtctacga	cacgaggatc	attgtttgtgc	240
atgcctcgat	atccgtccat	atctgaattt	catcagcatt	cagtgtctgt	ccgacagaga	300
ggcgtgtag	tcgctgccgc	cacgttggag	attgtcgatc	tctcgaaggc	attccgacaa	360
atgtaaccct	ccgtcaggaa	tagcatatcc	tctccggatg	agcctctatc	atcggcaaga	420
gatgcttccg	gatatagtct	tgtccggctc	tgcattcttg	tcggtacgca	tatactccaa	480
agccggcagc	tggtaccac	tgcacccatc	tcctgcaaat	agatctgcat	catggtcgtc	540
tcacagctc	gccgaggatc	aacacacgct	tttcctcgaa	gagtgtgagc	cctccacgtc	600
gcacatatga	cccagagagt	cgaggaggga	gtcgacgcct	tcttggctgc	gctcaaggta	660
tccggacgtt	tgtatagagc	atttattcgc	gatgatattt	ctctcgcaac	acctgcacca	720
cctctttggc	ctgtgcacat	tgcgtttgac	aagggtgtgag	gctattttcg	caagcgaatt	780
ggcttccgg	ccatagccga	aaggactata	atttttcttc	cttttaccga	aagaatcagt	840
cgggcaacac	ttgcggatac	gcttcagcat	ctctacaga	cgaccgcaa	atttgagaac	900
tttcaattcc	tgatcttatc	gtgctaattc	attccgtatt	ttttcttgaa	acagcatctg	960
cactcaagct	cgaccaaaga	gaggcatcgc	cattcttacg	aacggccaat	gtccgtgccg	1020
gcagatgcgc	agcaggctgc	tggtgtgcgt	gctcataagt	actgcagtgc	cctgcttatg	1080
atttcgtaga	gcagagaagc	gatctgcaat	ccggtcaccg	aatcgagttg	cctgtgggtt	1140
cgtcggccag	gatcaacgca	ggcttcgcca	gcaaagtctg	gctataccc		1189

(2) INFORMATION FOR SEQ ID NO:1455

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 454 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...454

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1455

agttcccgaa	tccgagttca	tccatcttgg	ccaccatagc	tttggcacgc	gcgagcctc	60
gatacgtccc	tgcggaagaa	gagccaactg	gtcacctgg	ccgatacgaa	gagcatagcc	120
gaaccgttct	tgcattgctg	cgcacaactc	cacatccgat	acaagccgct	gcatccatgg	180
cctcatccgc	attcttttgg	aaatggggat	agccgttggc	atcggggata	ccccccgtat	240
tgacgaaacg	aatccgccgg	actgaatgat	cttgtcataa	gccgagcgat	ccacatgagg	300
tctctgatca	caggggaagcc	ggccgagcgc	caaggctcta	tcggatcgta	tcaccatcat	360
cgaaacgacg	catgtgcagc	tgacaagtgg	tgtgttatcg	taccggcccc	tggggatgac	420
cattgatgta	gagtgagcac	aaccgcaaat	acct			454

(2) INFORMATION FOR SEQ ID NO:1456

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 881 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...881

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1456

attggctttc	agggtctcta	ataggagcct	tgccgaatcg	accntgctca	acggatgacc	60
tctttgcgct	cactcgtcca	tggcttatcg	gcaactccgc	tcctgccaga	tggatgatat	120
gcctcactcc	ttgcagtgtc	tcgacctgat	tcgccgtttg	ggaacgtccc	attcatattc	180
gttttcgttt	cgtttgggcg	cgtcaaaatg	cgtatggagt	aaccgtttcg	cacaagttct	240
tccgaagtgc	ccgtgcaacc	atcccatttg	cccggtaatc	aaaacaacgt	cttttgcata	300
aagaaaccca	caaaattcaa	tccgctaaga	caccgaaaca	aattataaaa	tgggatgcac	360
aagaaagtgt	acctcaatgg	aaaaatacgc	acaaaaaagt	tttcaacaac	gaagcggagt	420
ttggaatgat	tctaaataag	ctcctaaaga	gagggggcaa	tcggagtaaa	aaagacaaga	480
aaacggactt	tgcaagtcca	aatccgcttt	tcggaagatc	ttgaaacgat	ttatatataa	540
ccattttcaa	tttatatata	gattgtttta	gatttatata	taaaacgttt	caataaatat	600
atagatcata	aatgatttat	acataaattg	caggataaaa	aggccgattc	gggaggtgat	660
aaaacaaaatg	caccaccga	gtttaaagca	aactcagtgg	gtacccggtc	tcttgggtgg	720
attaccgaag	gggtatccac	ccttatacat	cataagtcta	tacgtctctt	ttctctaacg	780
cagtagtgga	tgtgaataaa	anggagcgac	tgtagcagtc	gtatcggcag	atgttggagg	840
tcataaatatc	ggtgtgcata	tcaatttagc	agtttattaa	t		881

(2) INFORMATION FOR SEQ ID NO:1457

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 576 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...576

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1457

gggacattcg gtatgtatat cccaagaaat cgttcaagta tgaaaaagga aaactccgac	60
tatggatgat ctgggtggaag ctttccttac agcttcgtcc agagtggagac caactcgggg	120
ctgggggtatg acaagaacgc caatcacacc tgattacata tgccaaaaaa gaagagaacg	180
gtacgaacac gctgaatacc gctggggccaa ttatgacaag attcataaca aagatttgtg	240
gagcgcacat ttacgtatac atcatctgcc aatgctctct acacacctca agtaacatca	300
atccgaccaa ggggtctcgtg tgctgggtcat gggtggaata tctccgggca aacggatcgt	360
ttgggtctgat cgcagtggac ccatgccaac gggtagaaga catcgtaatg caagaaggca	420
gcatgaagct ctacccgaat cggctcaaga atatgctgtg attagcctgc cgacggcagc	480
aaactgcaag ctgttggtta cgatatgcag ggcagaagta gtcgctgagc ttcttcttcg	540
cacgaataca ggctgaacgt gcagcacttg gctaag	576

(2) INFORMATION FOR SEQ ID NO:1458

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 839 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...839

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1458

cgctaaaaat cccgtaaccg aaaactccgg ttacgggatt ttatttggtt ttagaaagag	60
gtggggacttt caagtgtagg tttcagtagc aaatacctga gtgaccggcc gtaggtgcgg	120
atctcaatgc gcttaccgaa catgacagat cgccatcgag gtgcattacg ccctctgtct	180

cacgctcaat	gatacagtttt	cggccttata	ggtgtccaga	ttggagttgc	tgttgatacg	240
cttggaaga	ggtgtaaagc	caattgtgga	gcttccaatg	gattgaaagg	acggtaataa	300
ctacatccat	tttaccatcc	tccaaatccg	ctaattggagc	gattaaggcg	ttattgccat	360
actggggcgc	attggcacca	agtgacgagg	aagctttctc	ctcaaaggat	ttgccgtcta	420
tcgtcagttt	ggatccttcg	gtcgttttgg	aggtaactct	cgatcatggt	tcgcgcataa	480
gtgatagggc	tcgactaccc	gcttgggcga	atttcttgct	aacctcggca	tcgaatccca	540
tccgcagggtg	caaaagaaaag	ggcgactatc	cgcttcacag	cagtcgatgt	gcgaacatgt	600
ccggctctga	tcacttcgag	agctttcccg	acgggtgatgg	cagcttgagg	gcacgtgcca	660
acccgttgcc	tgatcctttc	gggacgtacc	cagcactaca	tcggtgtagc	gaaggctttg	720
ggctatctcg	ttcacgttcc	atcgctcctt	actgcaatga	cccagtcgta	atgcttctcc	780
actgttgtgc	tgccaattca	cgtgcatggc	cagcacgttg	cgaatagggtg	ataagagtt	839

(2) INFORMATION FOR SEQ ID NO:1459

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 511 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...511

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1459

aaatacgaat	tgataactccg	gtacgtagtc	ttttcggctg	attgtcgctg	ggcacatctg	60
gcatacctctt	tcatacagacg	actgaatctc	tctgcgagtc	gcccggttta	attgaagtcg	120
taaccgtata	tatccagatt	tactgtgggt	gtccgcccat	accgccaccg	cttccgcccg	180
gagtaacctt	ataacttgaa	tctcaggata	atcatccagc	atggtacgta	tctggtcggc	240
cacttgttca	tggagcggtt	tctctcggtg	cgcccggtaa	gaccgatatg	gaaatgatga	300
tattcgtacc	attgtcctgc	atggcggcaa	acatgctgga	agctcggcct	gaccgacact	360
aaagctcggt	ctgtcgattt	ccggtatttc	ttctcccaac	tgatcgatcat	acgaagagca	420
aaggctcgtg	gcagattgac	tccgtgcccc	ccgcatattc	tgccatgaatt	ggatatagcc	480
attgtcggac	gaggggaagaa	ttcggtttga	c			511

(2) INFORMATION FOR SEQ ID NO:1460

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1018 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1018

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1460

```
gttcgccttc cggcagattc tttgtggtgg agcaggcacc tgtcagtaga caaaaaggat    60
ggggaggaat acttgccgta atactttcat cggattctat cgctttgtcg gaatgatata    120
cgtctgcacg gataccggct cctcttcggt ttgagagctt ctgctttcga cactatgggt    180
ttcgtctctt tcttctgccg aaacggaaca gatcggaaca gcgcgccaac tttcgactga    240
tcacaagccg ataccgggtt ccgttatctc tccttcgagc agattttcat tgttttcttg    300
tggaagagtt tgaggtgctg tgctcctgat ttgtccagac ggtctccacg gatacgttgt    360
ccaccaaaagt cctttcctta ttggtcggca catggagccg gaagcgacag atcctccgat    420
cacgacacgg atcctgttgt ctagaactgt ttgctgaagc tgtacgtgaa gtccgtatat    480
gtaccgcccgc atcggtgcca tcgtgacttt ccataccgat gttcagtcog gagccatcga    540
taccttgccc aaagcactgt tgatcattcc ctgagcatag ctgctgaggc attgtcaaag    600
ttgaacccac tcgattgcga agccaaataa gacgctgtgc caagagtccg atggcctgct    660
tggaacgctc ttccggcccc atacttgcag ttgggtttgg atagagaagt cctccggtgc    720
ttcgacatca aacacaaatc catattcttg agcgtttctt tgacgatgat accaacatcg    780
aatcacctt tctcgacgtc ttgctaccgc tctccatcac atcggcacgt actgctgcac    840
tgctttgaag ttgacgtaag gctcttgtgc attgccgctc catgtacgta gctcgtatgg    900
tcgatagtga agacctgctt acccacgacg ggagcgtata gcgcatgggt ccgccaccac    960
tcatactgta ccgtccggtc aactcatttc cccgtaagcc ggcatagtga aagtcatg    1018
```

(2) INFORMATION FOR SEQ ID NO:1461

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 507 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...507

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1461

```
cgcaggacga agtcgttctg attcagcttc catgccagga agagggtga gtcaccttcg    60
caaattcggc cggctggagt cgcaacggtc ctatcaccgc cacgaatgcg agccttttat    120
atccggagct atcagtatgg tcagagcaaa agccccaaca tggcggcata gaagacggga    180
gccagcgact cgaaaaatcc gtctccatga gcagaacctat aaagcctatc accaccgca    240
gaccgtccac aggagctgca tcatcggacg accgcccac atgaaaagggt gggaatgtcg    300
aagtcgtaac ttgctccgca gacagcaaac caaccggcca cgagagcagc agatacagaa    360
tgatgggtaa accaatcgat ccgtccctta tatcgncttc gatctctctt aaaagacatt    420
gctgtagtga attgcagtgt tgacatcttc gtggccacgg cttcgnctt cggagacagg    480
ttgccttcgc gagataatac ttcattca                                507
```

(2) INFORMATION FOR SEQ ID NO:1462

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 654 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...654

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1462

agccaatacg aacgatgaac tacagaaaat cgaagaaaaa gtatcgccct tttggctgca	60
cacagcgatg ccatctacct taacgacaaa cttttccacg cgtaaaagcc gtttacgaaa	120
gtgaccaatc cgccatcgaa cccgaggaca aaagttagatc caagagtatt acgatgcctt	180
tgtccgtgcc ggtgccatct gagtgccgag gacaaggcca agctcatgga actgaacaag	240
gaagagcttc gctgacgacc gaattcggca acaagctgat cgcagccacc aatgcgcagc	300
ggtaatcgta gggagcaaaag actcgctcga tggctcttagc gaacggagat agccaaagct	360
gcaagcgatg ccaaagctgc cggccacgaa ggaaatacct gttgaatata accaatacca	420
ctcagcagga ttatctctcg gactgaacga ccgtaccatt cgtcagcgtg tattggaggc	480
ctctatccat gcacggacaa aggcgatgcc aacgacacgc agtccatcgt acttcgtctg	540
ccaggctccg cgcacagaag gctcgccctc tcggcttccc taattatgcg catggaagct	600
tcagaatcag atggctaata atccggagac agtgctgctt ttgtccagtc gata	654

(2) INFORMATION FOR SEQ ID NO:1463

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1131 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1131

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1463

tatgaaacct ctgcattggc gcgaaatgaa agaggctgat cccaatcgat aacccttata	60
gatgctcgtc ccagacaggc ctacgaagta gagcatatcc gggagcaatc agcaatgccg	120
gtggaggaaa taagggcacg catagggaaa ttcctcacga caaaccgatc tatgtatatt	180
gcgccgtggg gatgaggggt atttcgcctc gaacatcctg agacaatgtg gtttctcaaa	240

tgtgcaaac	tgatcgggtg	ctatcgcttg	tattctacca	taacggcaga	ctacgttctg	300
ccggccaacc	tgccaccgcc	caacttcctg	caaaggatag	tcctcttccc	atacacaggt	360
accggaggtg	gatgcctgtg	gcatgtcctg	tcggggccga	tcctcaagct	caaacaatcc	420
attgaccaaa	tagctgtagg	aagcagctct	gcacccctggc	taccgacccc	ggatttgctc	480
gtgatgctca	gcctgggtgcg	acacgaccgg	acacaatctg	atccggcagg	agaccataag	540
ggcaaataca	aagtgaccat	cgaaaagact	gcttgcaagg	aggaaggccc	tgcgtagaac	600
agactccatc	caaaggcaag	acattcattc	tcttcaggat	gatctggaca	aggctttggc	660
cacattcgta	ttggccaacg	gagcagagcg	atgggacagc	cggtgactat	attcctttact	720
ttctgggggt	tgaatccatc	aaaaagcctc	acgccgtcaa	agcgaagaaa	gacatttggg	780
gcaaatgttc	ggatatgatgc	ttccgaagaa	cagcaaaggg	ttaggactgt	ccaaatgaac	840
atgttcggct	tgggagcgaa	gatgatgcgt	atggtcatga	agaaaagcat	gtggactcac	900
tggagagcat	gcgtaaacaa	gcgttggaag	aggtgtagag	tttatagcct	gtcagatgtc	960
catggatgta	atggggatca	tcgggaagaa	ttgctcgacg	aggtaagtat	cggtggagtt	1020
gccacctatt	gaatagagca	gaagaggcca	acatcaatct	attcatctaa	atttgtgcgt	1080
aacaatcaat	cgaggctacg	gccttcagcc	gatggaaaat	gtagagttat	c	1131

(2) INFORMATION FOR SEQ ID NO:1464

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 538 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...538

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1464

ctgtgctaca	gcagcagtat	ggcctgatca	ccctgcagat	gggcttgggt	cggtggcata	60
tccggtcaga	atggatgtag	cagatctggt	cgctcatatcc	tgacgatatt	cacactcagc	120
tacttagctg	cctattatcc	tgtccacact	tcatcaatcg	cagactgaaa	aatagctgac	180
gaaaggcctc	attcgaaatg	aggaccatgt	gcaaaaagctt	tggaataagg	tgtttgcgta	240
tatcaagttc	gtatctttgt	agcaaaaggag	tgccggctat	gccgattaga	tgttagcaaa	300
cgaactcgga	agaaaaggtag	cacgatgaca	gacagtatag	ttatatccct	acctacaatg	360
agcgggagaa	cgtggccaaa	atgatagaaa	cgtcttcgct	ctacccaaaa	ctttcgatat	420
tctgataatc	gacgatggat	ccccgacgga	acggctgcga	tcgtcaaaga	gaaacaggcc	480
atctatcccc	aagacttcat	ctggtcgaga	gacaaggcaa	attgggtctg	ggtacggc	538

(2) INFORMATION FOR SEQ ID NO:1465

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 597 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...597

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1465

tcgcgggtag	ccttgttcgt	tttgacatcg	ggaaagctga	cggcataaaa	gccgttttac	60
cgtcggggaga	caaggccatt	tcgctcacc	gcgacaggtc	atgaatagtt	ccggcggtcaa	120
atgctctccg	gtattcggtc	cggctgaggg	gtcatagcag	ccgaaccaat	gatgcttgca	180
gccatcatcg	aaaagatttt	ttgttcattg	tggtgattta	ttactgtatt	gcgtttttatt	240
gtggacgaaa	atacgaaaga	aactcgttat	ccccctcttt	aacgagagtt	gaattatagg	300
agaacaaggt	ttgtcggata	aaagtgtacc	gccccctgaat	gaagcatcga	tgcaatcgct	360
atcggtgcga	taggcaagac	tcaatatgct	atgcttctgg	catacgaata	tcttcacgta	420
aatccttcat	tacagtacgt	ttgaagaata	ttcatttttt	taccggacag	caataaaaaag	480
aaatggatcg	tctcagccgg	aaaaagtttt	tctgcagtac	agaaaaagtt	gaaagctatc	540
tgcaatcttt	atcaaaggtt	tcggatatat	aaacgaagct	ttcggatagt	atccaag	597

(2) INFORMATION FOR SEQ ID NO:1466

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2627 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2627

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1466

tattcgga	aa	gg	tt	gt	agg	cacagc	atac	aatggag	caa	aagttc	aaaa	agaattg	cag	60
caatggat	gc	gctatan	caa	gaagcat	caa	gatgca	acag	agacgg	actc	agctatg	ccg			120
tattcggt	gc	acccaat	ctg	tctcgct	cat	tgcaa	aggcc	attatc	accg	acntcat	taa			180
tgagaagt	tca	cagaatg	aaa	tgataga	aga	aagatag	cct	cctctt	ctca	ttttgt	ttttg			240
tttacact	tc	gaacaat	acg	gtgggtg	caat	ggataaa	att	ggggag	agca	ttggac	atat			300
cctgctca	ag	gctacag	gta	tgggtat	ttc	gcatgct	tat	atgacc	agcc	caatgag	gta			360
cagggcct	ttt	cgggaaaa	aat	ggcagaa	ata	ctggcat	cga	agacga	aatat	cctacg	gttc			420
tgatacga	tt	gggatat	ggg	ataagat	gcc	gtattcg	ttg	agaaga	aagtg	tccaat	cctg			480
cattatcc	ct	attcctt	cga	ttgaaag	aat	caagagg	ata	caagcct	caa	aggatg	atcca			540
ccgaaaaa	atc	tctttgg	ggc	cggacag	aat	gtttgag	cat	ggctgg	caaa	acgaag	aggg			600
tgctgcaa	ag	acgaaac	gct	tgcagc	accc	tcttgag	ttt	cagcct	ttta	tcctcc	ggct			660
tatttctt	tca	ggtgttt	ggc	gaagaac	cga	gcatggc	acg	gtatag	ctcc	atggag	tttt			720
cttcacga	tg	gaatcgt	ggc	cttcgtt	gta	cttcacc	ata	tagggta	ctt	cgaatc	cgcg			780
ggcagcag	tg	ccgttac	gat	ctgatcg	gac	tcgttg	atat	tacgcg	cgcg	gtcttg	ggctc			840
cctgtacg	ac	gaacagt	ggc	ttattga	tct	tgtcgat	ctg	gagaag	gggg	acacttc	cctt			900

ggcgatagct	gcttcctccg	gattgtcgag	gcgtaccaa	tttccttgac	catttcctta	960
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ccgtggctgg	caccgtatat	ggcgatcctg	tcaggatcca	cccaacctgg	ctgatagcat	1140
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atcgaactgg	tagtaggtgc	gtatagcttg	tcgctttgta	cggcgataag	caggatggtc	1560
tcatcatctc	gtaatcgacc	acggagaatt	ctttgccctt	gaattccttt	tccatcactt	1620
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cgttggcgaa	gatctcgcg	atgacttggt	ctgcttcagg	tcgtagagta	cgatacaggt	1800
cttgtcgctg	tccggttggt	cagtacatag	gcttcgtctt	tgtttttgga	ggcatagttg	1860
aagcgatgac	tccgaaggtg	tcgtcccagt	gtgttttctt	cagcagacgg	actcgcccgt	1920
agccaaatcc	ttgtagtaca	actcggtatc	gatcccgttt	caggcggtct	gtatccacgc	1980
agttcgccgt	ccttgtcgaa	ctcgtaacct	gaatgggggt	ggccgcaccc	ttattctcgt	2040
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gtttttgtca	tggatatgat	catgtagtcc	ttctgctctt	tgagcatgtt	gaggatgaag	2160
ccttcactcc	gtcaaagggg	gtgagatcgc	gggtattgct	gccgtgatat	tcgaagcaaa	2220
gaggtgatag	ttctcattcc	ctcctttgtc	catgcaaaga	agagacgttc	gtcgttgatc	2280
catccgtagc	ctttgatcag	ttctcctttt	cttcgatggc	acgcttgacg	gtgccggtgg	2340
caatttcctt	gaatagacat	ggcgtttgcc	ggcatcgtcc	ttttccatgt	atgagaggta	2400
ctgccgttgg	ggcttagctg	aaaagcggaa	gccttgggtt	tggcaaagta	tcttctacct	2460
tgtatttgta	gttgcccttg	tccaaagctg	ccagtgccta	agctcttctt	cggctcgaagg	2520
caaggctgta	ttgccgggga	atttggtatg	aatcgttgta	gcgtaagcgg	caggctgaag	2580
cccatctgct	ctacattcct	tctatcgtat	tgccggacag	ggtgccc		2627

(2) INFORMATION FOR SEQ ID NO:1467

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 452 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...452

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1467

gccatacctg	tccgattggt	gcggctgtag	tccaaacgct	gaatacaact	ccgcttggga	60
tgtagtactt	ggccgtagtc	aatttgatca	cgccgttgat	ggtagctgac	gagtcgtttg	120
tacaagccct	ttgccatagc	tcttttgccc	atcagtacag	ccctgtccat	atcctgcagt	180
gctccggcta	caatctcgag	gaagatgccg	attgtccatc	gatcaggact	actatcggga	240
gtttctgtcg	atcggttcag	tcaatgtgcg	aaatacggac	gccgactntg	caatcgacct	300
ttggtcgtta	ccacctcttt	gcccttaggg	acgaacagat	tgatatctcg	atagcagcct	360
gcatacgtcc	gccaccattg	ccttcttaaa	tcaaaatgag	acctttcgtc	ccttgtttgt	420
nacgaagatc	caacaaggcc	ggcgcacctc	tt			452

(2) INFORMATION FOR SEQ ID NO:1468

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 349 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...349
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1468

```
ccagttgata ctggcttcct gcacgatgca ggacgcaatt gtcagctgat ctgctcccgt      60
caatgcgcta actatcagct atttgcaact attttataga ctttcattga agtcttttgc      120
cgcagagttg attcttaagt gtttttcgat tacttgaggt ttgcagagag atcgcatgaa      180
gctctccttt cttcgtaaatt caatgcattt atctgtcttg atcaatatga gggggggaagg      240
gttatgtata acggtctcaa aagggtgcctt tccggatcaa agtccaaata aaaacttgca      300
ggtctaactt ctgcaagggt tttttgtttt gttacgaaag ctcgatttc      349
```

(2) INFORMATION FOR SEQ ID NO:1469

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1431 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1431
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1469

```
tcccctggat gccatcttgt atgctaaaga aacagcttca tgcacgaga tgcacctgca      60
atccgcgaga tcttgccatc gaagaatttg tggagtttcc attatctatg cccaaaaaga      120
tcagtccatc gacttttagac aataccaatt ctctatatct gtatagtcac tgcctttgtc      180
tgtccccccg agaatgggat tactctagtt ttcattgctc ctagagcata ccaggtagaa      240
tttacttcgt agctttggag tcattgatat aatcgacacc ctttacgcga gcaacttttc      300
cagtcgatgc ggtacattct tgaaatcctg caaggcttct ctagagcctc attcttaata      360
```

tccatagctt	tggcagcaat	ggcagttgcc	atgcattgtg	cctgttgtgc	atgccggaca	420
gagctaaaag	ttcctcatcc	aaacaaaagg	tgaattaaga	ttcatgacaa	ccaattcgtt	480
cttttcattg	tccaagcagt	tgtattatcc	gttcgagcct	ccattgcgaa	cggtagaagc	540
gggctacagg	aggatgttcg	gctacccatc	ggctgataaa	aggatcatct	cccagtagat	600
gaagcaatcc	tcggggttgc	gattccgagt	gattctcttt	tcgcttctgc	ataaagctcg	660
aatcgggtgat	cgtatcgatc	taaatgtccg	gtgtaatat	gagcagaatg	gccacattag	720
ccctgaagtc	gtacagttgt	ccagttgaaa	actgctcaac	tctattacat	aataaggatg	780
aggacgtaag	cgacctgtct	ggccagacta	aaaccgacat	tgcctgccaa	accacatcca	840
aaccggcctt	acagagcgtg	tgatacaacc	acatgggtgt	tgtgtcttgc	cattactacc	900
cgtgatgcac	accataaatg	catcggtgta	agtccggcga	actctatttc	cgaaacgata	960
cctatctctt	tggcaacagc	tgtcgaataa	taggagcagt	gtcgggaata	cccgggcttt	1020
tgataatttt	tttgcttcga	ggattatcgc	ctctgtgtgc	ctaccttctt	cgtacggttg	1080
gcataatcggt	taagtctctt	cttgattttc	ggggctatct	ttccgtatcg	gatacaataa	1140
catgcagacc	tttggcttga	gccaaaagag	ctgctctact	ccgctttctc	ctgctccgag	1200
aacaactata	tcatatttca	atcggccatc	ttcccagatc	gttattttatt	cgttatcgca	1260
tcttgagtgt	tgctttgtaa	ttgcagccat	gataatccct	acgagccaaa	agcgaacagt	1320
gatttcgatt	cgggaatagc	ctgcataggc	ttctggagcc	atgcatctat	gcggcattac	1380
cggcttttgg	aaatggtggt	ggagggagtc	attttgaaat	ggccgacctt	c	1431

(2) INFORMATION FOR SEQ ID NO:1470

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2417 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2417

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1470

acttgatgtc	ttcgatcgtg	tcgtagatat	agataggtac	ggatctctag	ccacggtttc	60
cgcttgcttg	cggcagccac	gctggacgaa	cctggaatcg	atgataatag	cagatgaagc	120
tgctgcgagc	accacatccg	attcggaatc	tgccccacaa	ctttgggaat	gccattacct	180
ggatttcttc	tgtagaaagc	ggaataacca	aatcggccaa	agcttctacc	gagccgtcca	240
cgtccccttg	acaatgaggt	tcagctcttg	gaagttgccg	attgcacggc	gacgctgatg	300
tcttcgagcg	tgagtatctt	gtgtgtacgc	aatccctgct	cacctggagt	tgctctcggc	360
ggttagctat	ttcgcgagcc	tcttgctccg	tcccaataca	ttgaaagtat	caccggcagc	420
cggcgcgccg	ttcagaccga	gattagtacc	ggttcggacg	gtcctgcctg	cttcacgcgc	480
tgattccgtt	gttgaacatg	gctttgatgc	gtccgtgaca	ggtaccggcc	agaaccacac	540
gcccatattg	agcgtaccgt	tctgtaccat	gacagtggag	acataaccct	tcccttgctc	600
agagaagact	cgatgatcga	accgatggca	cggcggtagg	attggctttc	agctctaaga	660
tatccgcttc	gagcagaacc	ttctccgcaa	ttcggtgatg	ttgatgcctt	tcttgccgga	720
gatctcctga	ctttgtattt	gccaccccag	tcctcaacga	ggtagtctcat	gtttgcaagc	780
tgcttttgat	cttttcggga	ttggcagccg	gtttgtctat	cttattgatg	gcgataccat	840
cggcacacct	gccgctgaag	catgattgat	ggcttcgact	gttgtggcat	cacatcgctc	900
tcagcagcaa	cgataatgat	ggcaatatcc	gaatcttcgc	accacgggca	cgcatagccg	960
taaaggcttc	gtgtcccggc	tatccaaaaa	tgtaatacgg	cggccactgg	gaagtttcag	1020
accataggcc	cgatgtgctg	ggtgataccc	cctgcttccc	cttcgatcac	attcgtatcc	1080
taatgcggtc	cagtagcgaa	gtcttaccgt	ggtctacgtg	tcccatgccg	taacgatcgg	1140

aggacgcgca	acgaggtctt	cctcattatc	ctcttcgggg	caatggcttc	taccaaattc	1200
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cgagacgctg	attgtaccga	ccatcatacc	gatactcatg	caagtggcga	tgacttcgtt	1320
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cgtgccagcg	tctcttttat	tgtctctgta	catcttcgtc	cgagatctcc	accttggggtg	1560
ggagagacga	cgcttggtgt	tcttgcgggc	tccggaagcg	ttggactgct	gctgagcgga	1620
cgggtgttgt	tcttattgcc	ggacgaatgg	tttcctcctc	cggcatacgt	ttgccctgct	1680
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ccgcgtgttg	gtcttcagac	ggaaaacttc	ttcgggtgtc	tcttttttct	catctcttga	1920
gccggaggag	gtgtttcagc	ttcttgaggt	ttctgtgtca	gaccggttgc	tgtggtttat	1980
ccacaggttt	ttcgaccggc	ttggcaacgg	agccgcctgt	acaggctcct	ccggtttggg	2040
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gggacgactt	tgtttctctc	tttacaggtg	cagtttctct	tgcgggtttg	tcctcagcac	2160
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ttccctttga	tcgtaaagcg	aggtcgcag	tcttaggcac	ttccgtagct	attacctgag	2280
cttctttcgc	tgccattccc	gcgtttcctc	tttggcggac	ggagcagatg	caggagtgcc	2340
ttgcttttgc	ttacgaattt	cttgcgaatg	cgctcggcct	cacccttggg	cagcgacttg	2400
caaattcggg	cagcagc					2417

(2) INFORMATION FOR SEQ ID NO:1471

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 722 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...722

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1471

ttttctctga	taaacgatac	gaacttgggc	gatgtcggac	gctatcgtag	aataagaaac	60
tcaatttgaa	tattgatcct	gatatacaag	tgcttgacaa	tgaagatatt	attgagatca	120
tcaagtatct	tattgagtta	gtaaattcaa	ggcatcagta	gatgatatag	accacttgtc	180
gaaccgtcgt	gttcggctgt	cggagagcag	ctttacaacc	aatttggtat	tggtttggcc	240
cgtatgccag	gacagtacgc	gatcgaatga	atgttcgcga	taatgaagtt	ttcaacctat	300
cgatttggtc	aatgctaaga	ctatttcctc	cgttgtgaat	tcttcttttg	caccaatgcc	360
ttgtcgcagt	tcattggatca	gacaaaccca	ttgctgaaat	aacgcataag	cgacgtctgt	420
cggcattggg	ccccggaggt	catcgcgcga	acgggcccggc	tttgaagtgc	gagacgttca	480
ctacacgcac	acggtcgtct	atgccctatt	gaaacacctg	aaggacctaa	tatcgggtcta	540
tctcctccct	ctgcgtatac	gccaaaatca	gtgatttggg	ttttattaaa	caccataccg	600
ggaagtaaa	aacggcaaa	tagatttctc	cgacaatgac	tgaaatacta	cacggcagaa	660
gaagaggaag	agaagaccgt	agcacaggga	aatgcgcctc	ttgacgaaaa	tggtcgattt	720
gt						722

(2) INFORMATION FOR SEQ ID NO:1472

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 659 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...659

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1472

gaccgctcct	tcgaagccct	cggacagggc	aacctcgagc	tggccgagca	gcactccgtc	60
aggccatcaa	agcctatccc	gacttgccct	ccggctatcc	ctgatgaaca	acctcgggtgc	120
catccagcag	agacagggca	agccggagaa	gcgctgctca	cctacagcgc	agccctgcaa	180
aagctccctg	acgacagctc	ctgcgcacga	acagagccat	gctcctgacc	gaaatggggac	240
gaacgacgaa	gccatattcg	actacaacga	actactcagg	gcagagccgg	acaagagatc	300
ttccactacg	gcagagccat	gctctatctg	gccaaaggaa	tgtcggcgat	gccgagtcgg	360
atctggaaga	aatcctccgc	gtcaatgact	cccgtcaaaa	gcccgtctcg	gcatcgccct	420
ggtggcaacg	atgaaaggcg	atacgacaaa	gccgaacggc	tctacaacta	cgtgatagac	480
aaactcccga	aaacgccgca	gcctacgaag	ggcgcgcccg	cctcttcctg	aacaagggat	540
gaaaggctac	gccctgcgcg	acatcaacaa	agccttcgaa	tacgccaccc	gcctgccgcc	600
tccctcttcg	tgctgcgagg	cgagatcaac	gccgcccaagg	cgacaaggaa	agccggcgg	659

(2) INFORMATION FOR SEQ ID NO:1473

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 527 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...527

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1473

cgcttccgcc	ggtttgttcg	ccgccgcctt	cgctcggagt	ggaggagag	tggtgtcatc	60
tactttctga	ccgttgccgt	agacagccaa	acggatatgt	cagctacggc	tgagagcgtg	120
ttattgatat	agaaacggat	tctgggcttt	tgaggatgga	ggcattcacc	tctttctccg	180

tttccacata	cttggaggaa	cggacacgcg	gaagggtgccg	atctgtccga	gtctgacggt	240
attgcctcgg	tgagttcgcg	ctggaggtag	taggcgagtc	ggtcgatggc	gttggcacat	300
cgctgtgggt	cagggaggac	atctcggcaa	tgtctttgat	gactcctcgt	actcgattac	360
tcggggtttg	tccacttggg	catagtacat	ggctngtcct	tgtgcttgcc	cgatcttcac	420
gagacggctc	ttgactgaca	ggtcagcatt	tcgttttttt	tgttggttaa	gtgaattatg	480
gtgatatctc	cgttgtcttt	tcttgagcca	tgacgatgtg	caacacg		527

(2) INFORMATION FOR SEQ ID NO:1474

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 748 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...748

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1474

ccaggacaat	gcaaattatt	tccatcgtct	gcgagaaatt	acccttgaat	cagcaacacg	60
aagtttggtgc	cggcctctca	acttccaaag	tattggaact	gaacaaagaa	tctctgcttg	120
ctctgatcga	agaatcctta	tacggcacca	tggtacagtg	acttccgctg	cgaacggaca	180
gcctctcaaa	tgccagtctt	gatagaaaac	catgacaagc	gcaactccga	tgtttactcc	240
gatgcaccac	aggctactac	gtacgtccta	tcaaagccgg	cacttatacg	gtgaatacaa	300
agccgaggggt	tatcctgagg	caactcgtac	cattacgata	aagacaaaga	aaccgtcatc	360
atggacattg	cattgggcaa	ctcggttcct	ctcctgtacc	cgatttcaca	gcttctccta	420
tgaccatctc	agtaggcgaa	acgtccaatt	ccaagatcaa	acgacaaata	acccacgaa	480
ttgggagtg	cgttcgaagg	cggacagcct	gccatgagta	cagagcagaa	tccgctcgtt	540
cctatagtca	tcccggtcag	tacgacgtta	cgctcaaagt	gtggaatgaa	gtggttccaa	600
cacgattacg	aaagaaaaat	tcatcactgt	caatgcctat	gcctgtagct	gaattcgtcg	660
gtaccccgac	ggaaatagaa	gagggcagac	ggtatctttc	caaaaccaat	ccaccaatgc	720
caccaactac	gtatgatatt	cgatggcg				748

(2) INFORMATION FOR SEQ ID NO:1475

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1018 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1018

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1475

caattatacg	caggggttatt	gtatctcatg	tccttcgggt	agtaggcaca	tatcctgcta	60
caggacgggg	aaatagccga	ctttctctcg	ataaggtctt	ccTTTTtata	ttacctttgt	120
gccgaagaac	tcaatcagct	attacaaatg	gatattgccg	tagtcggtat	cggctatgtg	180
ggactgggtca	gtgctattgc	tttgcgaggt	tgggagcaaa	tgttcgctgc	atagatactg	240
atagaataaaa	atcgagcagc	tgaacagcgg	gactatcccc	atctatgagc	cgggcttgaa	300
aaaatgatag	ctcgcaatgt	gaaagccggc	agactgcgat	tcgaacggag	atagagcaag	360
ccgtgccgga	agccgatatt	gtattcatag	cgtgggtaca	ccggccggcg	aagacggcag	420
tgcggtatag	ggctatgtac	tgatgctgcc	cgtagtatcg	gccgtgccat	gagccgttat	480
attctgatcg	taccaagagt	accgtgccgg	tgggacgta	ccgactgata	aggaagggtt	540
acaggaagaa	ttggacaagc	gtgagggtgt	gattgacttc	gacatagctc	taatccggag	600
tttctgaaa	aaggaaatgc	catcgatgac	ttcatgaacc	cgatagagtg	gtcgtgggag	660
tggattccgga	ccgggcgcg	gaactgtcac	aagcctttat	aagccgatgc	tcttaaacaa	720
tttccgtgtt	cttttatgga	cattgcttcg	gctgaaatga	ccaaatatgc	tgccaatgcc	780
atgcggccac	tcggatcagc	tttatgaatg	atgtggccaa	cttgtgcgaa	cgggtgggagc	840
agatgtttcg	atggttcgtc	tcggtatcgg	ttccgattca	cgataggcag	caagtttctg	900
taccggtgtt	gcggatacgg	aggatcttgg	ttcccaagga	tgtaaaaagc	actgatcaga	960
accagcagaa	gacaacggct	tcgaatggaa	gtattggaag	ccgttgaacg	tgtgaacg	1018

(2) INFORMATION FOR SEQ ID NO:1476

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 791 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...791

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1476

ctctagagga	tcccccaactt	ttttcagtag	acgtcagggg	ttattcttta	tcttgaattt	60
tgctcaaatc	tcatgagaaa	acagatgaaa	ttcgcttccc	attttccttt	tttacccttc	120
cgagtgtcaa	cttttttcag	tacacgtatc	tttaatgcgg	taaaatctgt	cacttcgata	180
aattacgagc	cgaaaagctc	ggattgtggt	ctgtaaatcc	tgagaaaacg	gggcgagaat	240
tttttgcttt	ggcgcgtaaa	aattttacct	cccagagcaa	aacgcaaaaa	attagcgcca	300
cgttttcatg	gctgtaaaagc	cggcaatttt	tggagcctga	acctcgtacg	gggggaggga	360
gtagcgatgt	gtactttcgt	ggacttccga	gtcagggtca	ggctctatat	tgagccgggt	420
gtcccgggtg	atcaggtatt	gttgtcttag	ggtgaaaacg	ccgattgcag	ggcattaagt	480
cgccgggtct	agctgtcggc	aacctatagc	gaccgatgga	aacctctctc	cgaagtactc	540
ttgcagagta	atgaataact	ctctaaagcc	ggctttcgac	aggttttcct	gcacctgagt	600
ggactatact	cgtatttaga	gaccattgca	caaagagctg	ttctttctgc	tagcttggtc	660
ccggtgtgtt	tttgaccatt	ctcgtcgttt	tgcagcctgg	ggactaatat	tcaagggtga	720
gaacacatct	aaatgtcaaa	aacacaagga	aacttggttcg	gfattgggtga	gctggatttg	780

tgcatgggtct c

(2) INFORMATION FOR SEQ ID NO:1477

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 323 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...323

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1477

ggaaacaaaa	cttaaagcat	ccttggntac	atcttccttt	ttgactatag	taaactctnca	60
atttgaacat	tcctccgag	gaacttttga	taatctctna	gtaagggaca	tgtacaataa	120
catacttgag	caattcccaa	aacagatctc	tngntgctct	cgtgatgata	ctacatgtgc	180
ttncctataa	gttttttata	ggcaggcatc	catttaactg	ctttntaag	ccagtattnt	240
agacgtagga	ggcattatta	agcataaaca	tacttntaac	gntcttatng	tttaccatga	300
aagantttatt	ctntacttaa	aaa				323

(2) INFORMATION FOR SEQ ID NO:1478

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1050 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1050

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1478

actctagagg	atccccgggt	ccatgggggc	attgccacta	ccgtatgtcc	catgactaca	60
cccttcagtg	aggggatgcc	gagaatgctc	tccactactc	tcgtgtaatg	ccggggaata	120
ttttcaggat	cacaacgttt	ctgtccattc	cgtctggaca	ctgagggcgg	catcgccccc	180
tcggctctgct	atcagacatc	ctcgtatcga	atgtcgatac	cggcataggc	caagggtgaa	240
aagtttatga	agcaaaggcg	tcgaactggg	ctgcactgac	tttcgatgta	cgatgccacg	300

catcagatag	ttgtcgaaga	aaatacaaac	ttccggtacg	cggcatagcc	gttttgtttg	360
gctgcagcaa	tttcgatagc	ggatgatgagg	tttctttgcc	atccgtacga	aggggtaccga	420
taggcagctg	tgaccctgtc	agattacggg	tttctgcaga	tcatccagca	taaagcttag	480
agcagaggcc	tgtaggcat	cgtatcagtg	ccgtgtagga	tgacaaaacc	gtcgtaggcc	540
ggtaattctc	ccgaatggtg	tcggccagcc	ttaccacaaa	atccggagga	tagcggccga	600
gtcgtatggga	ggatcaaact	ggatggagtc	gattttgaac	cgaattttt	cagttccggc	660
acattggttt	ccagatat	gaagtcaaag	cttctaatac	tttcgtctcc	ggattctcaa	720
tcataccaat	tgtccccccg	tatatatgag	gagaatcgca	gaacgtcctg	aagcagattt	780
agttgcatta	tgtggtgagc	taaacaaaac	gggtggcgggt	ttttccttcc	ggctccaaga	840
tcgtacagcc	atcggactat	ggctttggat	acggccgggtg	cgaagataa	taaaagctcg	900
ttcagagcat	gctttacggc	cagagcaatc	gttttgaaagt	gttaacacac	atataaacct	960
gatgatgctc	catccaaaat	agcttagcac	gatattgtct	gagagcgtag	agaggaaaac	1020
gatcaggaga	aaagtcaaga	ggataactct				1050

(2) INFORMATION FOR SEQ ID NO:1479

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 642 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...642

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1479

cgtaaatggc	aggggtggcat	ctacctatcg	cgaagaaggc	gacgagtaca	tattcgcgtg	60
cgcttggccc	ctgagttcag	gcatcattg	agggacttga	aaatatcctc	atttatacgc	120
ctcagggcaa	aggtgttcgt	ctgggaggct	gggtaaaata	gaagagctgt	acactcctcc	180
caccattgaa	cgaagatcgc	tcagcgtgtc	gttatcgtag	cttccacggc	tgtcaaagga	240
gctgcttgag	cgatttggtc	gaagtggcca	aagaaaagat	tgctcaactg	gagatcccga	300
cgggattgac	tacaaaatca	gtggtacata	cgaggaccag	cagagacatt	tgcagacttg	360
agcaccctta	tgctgctgat	cgtgatactc	gttttatcgt	catggcagca	cagttcgaga	420
gtctcgtcga	tcggtttgtg	acatgttttc	cataccgttt	gctttcacia	ggtgtcatag	480
tcggtcttat	attacccaat	taccactttc	agcgtatgt	cctttatcgg	tctgattatc	540
tgatgggtat	cgtgggtgaa	agaaccggta	ttgtgctcat	cgatttacct	cgtctgtgtc	600
gcgaacgccg	tatgggcatt	ctctctggcc	gtagtacagc	cg		642

(2) INFORMATION FOR SEQ ID NO:1480

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 512 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...512

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1480

cttcagctgt	ttcgctcaca	gctacaacga	tttccgtata	gatgcggagg	tctttgtaac	60
agggttatac	tggagcggag	caaagtttac	tacctgacac	gtacatcgcg	caggatgaaa	120
ggatcgctca	gcgtagcgat	ttcgcccgga	agaacttgtc	ttcattatag	ctctgtccgt	180
acacgtaggg	gatttgtcag	gattttcagc	gcgagagata	acacctttag	agggagcgat	240
cagcaatcct	tcttttcgat	gaatttggaa	gaaactacct	ctaccttcat	cgcagtgttt	300
cagaaacggc	aagagaacgg	gaaagaatgg	gcaatatagg	cgtcctttct	ccgagatatt	360
gacaccttcc	gtgaaggtag	gcacctgaac	taccctttgg	aagtctgttc	gcctgtgaac	420
tgaagattgt	ccatacggaa	tgcaccttgg	acatagactg	ctcagcggag	agcagtcgta	480
cttgtggggt	cgaacgcgct	ctgccggctg	tg			512

(2) INFORMATION FOR SEQ ID NO:1481

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1063 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1063

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1481

ttcgccaccg	gctcggcaag	cctcgatcag	gtagtcgtac	gagagaactc	accgaccttt	60
ggagcatcct	cctgttcctg	ctatccttcc	ttgtcacctc	aagaagtggc	tccatcccat	120
cctcacgata	ctgcttgccg	gtctcgcggc	ctgctgatat	acggcttctg	aaaacgagct	180
atgccataaa	tcgaatatga	cacaacccat	tcggccggct	taggatttcc	aagaagggct	240
ttatccaacc	gagatcgaca	gatggagata	ttcgttgaca	gggtacgaac	ctgcggcttt	300
tatctttaga	gcttccta	atcttcaaga	cggttcance	aactctcaag	aaacgntgt	360
tggtatgcct	tagcaattcg	cgttcgggtg	cctgcgtccg	atgctatcct	cgtacttttt	420
tatgcttctt	gctgtaatgt	ctctaagaac	tcgcgacgtg	catcgaagat	ggactcaaac	480
agctcatcgg	atctgcacta	ttgacagcct	gtaaggctct	attgccact	attccatcac	540
ctgcacacct	agtatccttt	gaggaataac	aataccatac	ttgcctgacc	ccaaacccaa	600
tcgacaagga	tattagccac	cttttgagac	tcgattagtc	agctttccaa	cgatcccaat	660
aaaatgggtt	caagactcga	ttcaggcgtc	atcatcgggt	agcaacttga	gatcctcaac	720
atcgatgtct	ccatcccgtc	tttgtcatag	ccgactcttt	tccaagtcgc	tattgttaca	780
ccttgtttgt	tgccctctct	gcacgcggcag	gatcatggac	aaaaccacct	tccatttcaa	840
tatatatggg	agtaataact	taacatttgc	catctttctt	cacttctttg	agttcaacat	900
aaatcaactt	ccaaaagcca	ttcngcatcg	tttacaaaaa	gctcgttcca	cagtccttcc	960

gtcattcctt cgactgcatg accttcgttt taagcctatc ctatccataa ggatctattt	1020
ctctcttaag agagtgatta tctatgtaca aagataagtg ttt	1063

(2) INFORMATION FOR SEQ ID NO:1482

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 724 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...724

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1482

ccccgggtgc	ggcacaagca	tttctctgcc	aagtctacct	cggccaagcg	cgcctacgag	60
agcaagacca	agacttgcgt	aagaagcttg	cacaactttg	gcagagaatg	aagactttgc	120
acctgaagat	gctctacagc	tcgcggtg	aatccctatg	accagaatgc	cgtcagctca	180
ttcttcgacc	ctgaatgatg	tttggcctcg	cagatggctt	cgacatcgtg	attggcaatc	240
ccccgatgta	caactacaga	ataatggggg	agaattaacc	aagctctatc	aagggtgtgac	300
ttcaagactt	ttgctcgta	tggagatgta	tattgcctat	tctcgagcga	ggctggcaac	360
tactcaaaaga	gggagggcac	ctctgctaca	tccctccaac	aaatggatgc	gtgcagggtta	420
tggagaaaag	acaaggctat	tttcgcctcc	aagactaacc	ccaagctact	tgtagacttc	480
gctggagtta	ggtctttgag	agtgctacgg	tcgataccaa	catcctactc	ttcgccaaga	540
ggccaacgca	ggacagactc	aagcggcttc	cctgaataag	aatgtccaat	tggcggtagt	600
gaattgtgcg	aatatattca	acagcatgca	acagccttgc	tttcatctcc	tccgagagct	660
gggtcatcct	atccccctatc	gagcaggtat	caagcgaaaa	atagaagccg	tcggcaaacc	720
tctc						724

(2) INFORMATION FOR SEQ ID NO:1483

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 5069 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...5069

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1483

aaggggaatac	ctaatacatta	cttcacacca	tagtgcaaac	ttcgtagtag	nctttcacnt	60
tttcgacctg	attgcctngg	atgattatth	ctccgtcttg	gctgctcctc	ccactccgca	120
tcgctgcttg	agcaggcgcg	acagatcgtc	agatcgctcg	cggaaccgac	gtgtccgctc	180
acaaggggtga	cctcttgccc	cgacgctgct	tccgatccag	cgtgatacgc	agacgttggt	240
tctccgagga	agcgtctcag	ctacctcttc	gctatcttca	tgttcgtatt	ggaatcggga	300
ttcgtactgt	acatgacccc	cagtctgttc	ttccagtcac	tcaattttat	attctccata	360
aataaaaagct	gccgaggaga	taccacaacc	tcacgacagc	ctttgttcct	aatcaaatac	420
cgcgcgtctt	agtgcggatt	attcttttgg	gccgacttgg	taatgcgctt	gcgcggctca	480
ggcatgggtct	gacacgaacg	atatgctcat	tcgcaccttc	ccacatgata	tccttttcac	540
tgtgcgcaga	taagctatct	catcgctttt	tttcaccaca	gtgccttggc	tactacctcc	600
gtaatacggc	cgggtgaatgt	accaatagac	tttctcgtat	agccaaaattg	gttttcgatg	660
tagcagaaaag	gctggccggg	acgatatcgg	caccgatagc	cggagcgatg	gattgctctt	720
ccgtatcgat	ttcccataga	gtcgtccgga	gcagggtgcc	acgatcggat	cacatccggc	780
acgctagctt	ttttgatgtc	ttcgtcgcta	tatccctgct	tagccatgcg	atcgcttttg	840
ctttgtccag	atcggcattg	aagcgctcct	tggctacgcc	gcctttagtg	cgcgatattg	900
acggctcggtc	atggcaagct	cgaatagctc	tcgtcgtctg	ggccatactc	ccaaccgttc	960
tgatccattt	ccttgcgaaa	tcgtccaagg	catcaggata	aaattgctga	ggatcggcat	1020
ccgaaaattc	attcccttct	cttttgccaa	agcgatgata	tcgggatcga	gtttgcccgg	1080
aaacggcccc	atttgccgag	gatcataccc	catgtgttct	ggtcgatgct	tgccaacgcc	1140
cttcgccccg	tatcatgttg	tacacgttca	tcagggaaca	ttcttcacat	actggctgaa	1200
aggagttacc	aaaggaggat	agccaggcgc	ggccatacat	actctacctc	ttggaagaga	1260
cgtaccagta	agctgctgat	gtcatctccg	gctcgccctt	tcctttgagg	aacatattga	1320
tactgcatgt	acccctttca	ggtcggccat	catggatccc	atcataccgc	cgggagaccg	1380
catccacga	gcagcgagct	cgtctctttg	ttcgacggat	catgaaatag	cccaagaagt	1440
cgtctataaa	ctcctgtgtc	aggcttcgag	tttcatgtag	gcataccatat	tgatctccgg	1500
cactttgaag	ccggcatcct	gagcatctgc	tggatgggtga	tcacatccgg	atgcacctta	1560
ccccaaagaat	aggctccata	gctacgtcga	tgatgtcagc	cccattctcg	caaacctcag	1620
catggaagcg	acagagaagc	cgggacctga	gtggccgtga	tattcgtgat	tacatcgggg	1680
tgcttgggtct	tgatggattt	caccagctga	cccagagaaat	gaggacgacc	gataccggcc	1740
atatctttca	ggcagatctc	ggtgccctgc	tcgatcagc	tcatacggcca	gaatggagta	1800
gtactccacc	gtggtacgga	gagaacgtga	taccaaagcg	tagcctgtgg	gatcatgccg	1860
gctccagtg	atatttgatg	gatggaatga	tatgcgagca	tcattcaggc	ctcgaatata	1920
cgtgtgatgt	ccacgccctg	tgctttcttc	accttgtaca	cagccggcgc	acatcagccg	1980
gtacggggaa	catacgaagt	ccgttgagtc	gcggctccagc	atgtgggtct	gaatacccg	2040
ttcgttgagc	ggtttggtaa	agcgcgcact	gctttgttgg	ggttctcccc	atacaggaga	2100
ttcacctctc	gaatgcacct	ccgttcgttt	ccactcgcgc	aaagcaaccc	atctcccaat	2160
aacgggagct	atgcgttcca	attgatcttt	tcgtggttgg	tacttcctga	cgactgccac	2220
atgtcgcggg	acatcagact	gaatttgatt	tcctcttcat	attgttttca	agcgatttctg	2280
tgttgtgtac	ttgacttctt	ccttatataa	ataccgactg	tgatatgcta	aaccacaaa	2340
gcaaagggtat	caataattcc	atagttaate	cggccggaat	gaatttttcc	acaccctgt	2400
acgatgaagc	ggagcacccg	cgatccatcc	atttccgaac	agcccgaatc	aagaccggca	2460
taccccgtaa	tagactgata	gagaggtcac	aagctgatca	tcgcctccta	tagaaacgat	2520
tccggagaga	ttgttcattc	gggagtagta	tcggtttgtt	ttttggtgcc	gaaagacgga	2580
gaattgccga	gcctaaatct	caaaaaactc	aaccacaagg	aaaatcttta	cgcgcgagat	2640
ttttttcttt	tggtctgagt	tttatttttt	tctcgaacca	tcttttttctg	atccgaattta	2700
tgctttttca	tgctccgcaa	ccgctcggaa	agcaattcct	gctactgtcg	agaaaggctt	2760
cgacagcaga	ggccgtgggtg	cataccggct	ccctatgtaa	taatagggtat	gcctcatgta	2820
attcttttcat	cgatataacg	acaaacagat	ctccattata	cagaacaaac	tgaagccata	2880
gaccaagaaa	gaactcggat	tcagaactcc	gttcgagtgc	ttcttgctaa	aattataaaa	2940
tacaattgtg	ttgcacatat	ttgtgggatg	tcgacggaag	gcaagttatt	gctccatagt	3000
aaaaaaaagat	taccttttgca	gctgttacgg	atggatgggg	aggcgaccgg	atcaagggttc	3060
ctcctttttg	tttatcccaa	tgtccaaaag	tacagagcga	gatgatagac	agagaacaaa	3120
tcgttcggat	cgttttcgatt	atttgcctac	cggggagact	ttcctcgtgg	aggtggcgat	3180
acatcgggca	acaggatcct	cgtagagctg	gatagcgccc	aaggagtttg	cataatgagt	3240
gcgtagcact	gagccggcac	atcgaatccc	aagtggatcg	ggaatagaag	actacgaact	3300
ggaagtaggc	tcgaccgggc	tgacgtctcc	tcgaaagtga	tgccgagtg	ggagaactgc	3360
attgatagcg	agctgtccgt	atgctaacca	atgggatgaa	ggaaaccggg	cgccttatta	3420
ctgtcgtctc	gaagctatca	agctggaagt	ggtacgcatg	gtgaagccgg	aaggagccag	3480
cgcaaaaagc	ctgaaactca	agagttgaca	atagtcatgg	ccgacatcaa	caggccgtgc	3540

gtatcatata	agcaatagta	aaaaagaatc	aagagaaaca	ccataaagag	agtcctatgg	3600
ccaagaagca	agagacgata	agcatgtaga	atcgctggca	gaattcaaag	agctgaaaaa	3660
cattgacaaa	gagacatgat	caacgtcctg	gaggattcct	tccggaacgt	tctggcaaaa	3720
atctcggatc	ggacgacaac	ttcgacgtaa	tcatcaatcc	ggagaaaggc	gactcgaaat	3780
atggcgacc	cgtcaggtag	tagaggacgg	tgccgtagag	gagaaagtcg	cgaagtgtct	3840
ctgtcggatg	ctcacgagat	cgaccccgag	gggaggctcg	tgaggaagta	acggactccg	3900
tgaacttcgc	ttcattcggg	gccgtgccat	tctcaatctt	cgccaagctc	tctccagcaa	3960
gattatggac	ttcagaagga	aaacctgttc	aatacattca	cggaacgtat	cgggcagcca	4020
tttcggctga	agtatatcag	gtatggaagc	gtgaggctct	gcttatcacg	acgacggcaa	4080
cgaactcctg	atgccgaaga	gcgagcagat	cccaaggact	ttttccgcaa	aggtgagacc	4140
gttcacgccg	ttgtggagcg	cgtgggaacg	ccaacaacaa	tcccaagatc	atcgtatcgc	4200
gtacaagcgg	agagtcctca	agaggctttt	cgagctgaat	gtaccggaga	ttgccgatgg	4260
cctatcacca	tccgctgcgt	agcccgtatc	ccgggagaga	gggccaagat	ggcgtagagt	4320
cttacgacga	tcgtatcgac	cccgtaggag	cctgtgtggg	ttgaacgggt	cgcgcatacg	4380
aggtatcgtg	cgcgaactga	gaggcgagaa	atcgacgtta	cgcagtacac	gacgaacacc	4440
gccctcttca	tccagcggga	ctcagccctg	cacgtatatc	ttcgattcgc	ctgctcgaag	4500
cagagcatag	gccgaagtat	tcctgcgccc	cgaagaagtg	cctttggcca	tcggaaaaat	4560
gcctcgaata	tcaagctggc	atcggggctg	acgggttatc	agatcgagtg	ttccgtgaca	4620
tagacgatat	ggacgaagaa	gacatctatc	tggacaattc	aacgacgaga	tcgaccagtg	4680
gatcatcgac	ctgttcaaga	atatggttgc	aatacggcca	agagcgtgct	cagcaagaac	4740
agagaagatc	tgacaaagag	acggatttgg	aagactccac	catagactat	gtactcggag	4800
tctgagtgcc	gaatttggcg	atgaggatca	ggtgactgat	aatcaaagta	cgattcggat	4860
gatttggaca	atttctctgc	cgaagacgat	ctgaagcaag	gtaataagaa	gaacaaaagc	4920
agtctcctcc	ccatccctca	tcttatagtc	aatcctcaca	aaggtgcagc	ataaatcaca	4980
gaagaagaaa	aggttagttg	tcaatnaaan	aattcagctt	agctaaagag	ttaaattgtag	5040
gagtaggtcc	ctcgccggct	ttcttcgga				5069

(2) INFORMATION FOR SEQ ID NO:1484

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 424 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...424

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1484

ccagacagca	tttcgatcag	ctcattgtcg	atcttcgatg	ccggcagtag	atcgtcatct	60
ttttgatcaa	tgtatcggcc	acttgaggta	gcagttcggt	gaggtcacga	ccaattccat	120
ttcaccctct	ttccacttat	gaggctgacg	gatgcgcgaa	tgaggagata	cagccccctcc	180
ttgcaataat	tgccgagttt	acatgagcct	gtccgaaaag	aggtattttcg	cccgtgccgg	240
acagacctct	aacgtaatct	ttgagtacgg	attatttcgag	cgagagattc	cctgaaagcc	300
ttggtaacaa	taccggccaa	aaccaaattt	ttcccgaacca	aggatcggat	cgggtcaaatac	360
ggctgcatgg	gtattgcaat	agtggatcga	gatgacttgg	tactgagcct	ttggattgga	420
acta						424

(2) INFORMATION FOR SEQ ID NO:1485

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2513 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2513

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1485

atccccgaac	ctcaattcgc	tgtgattttc	gttttttatac	aactgtccag	ggactatttcg	60
ggattatgtc	aggttgaaaa	tggcgtcagt	gcgcctccgc	caattggctc	cttcgccgat	120
ctcggctatc	agaggaacac	gcaaagaggc	atcacccctc	ccatacacga	gcgtacaagc	180
tcgcgaactt	ctgcagttca	ggacgaagaa	cggtgaagtt	gagttcgtcg	tgcacttgca	240
ggatcttcgg	ctccgcagct	tacgctcagt	gatttcctcg	tgtattctga	tcatgccagc	300
ttgatcaggt	cggcagcaga	gccttggtata	ggggcattga	tggattccgc	tctgcatagc	360
cgcggacgac	ggcattggca	ctgtttatat	ccggaggaat	cgcttgcgac	cgaacagtgt	420
ggtagcgtag	ccctgtcgct	tgttcgggca	atactccgat	ccatatacgc	tttaaccccc	480
gggtaagagg	aaagtaacct	tcgatcaagg	ccttggtctc	tgtacgggag	atattgagcg	540
ttcgctaagc	tcgaaagcag	agatgccgta	gatgatcccg	aagttggcgt	tttagctcgg	600
cggcgcatgt	catccgtgac	ttctacaaga	ggcagccgta	tattttggag	gctgtggctc	660
ggtggatgtc	ttccccatgg	agaaaacctg	tatcaagctc	tcgtcttcac	tcagatgcgc	720
catcagccgc	agctcatctg	agaatagtct	gcgctcatga	aaatacattc	gtcattgtcc	780
ggtagaaaagc	agccctcagc	ccccctccga	cttcgggtccg	gatcgggaatg	tttgagattt	840
aggattgctg	ctggagagac	gtcccgtggg	agcgacggtc	tgttgaaacga	ggtagtcagc	900
ttaccatcgg	ggtagcgcac	ctccggcaga	gttctacata	ggtagctagt	agttttttga	960
ttcctctata	gtccagtatg	gacgcacgat	gggatgtttt	tcctgtagct	tgaccagaat	1020
ttcttcgttg	tagagtagct	gccggacttc	gtcttttttg	gcttttcggg	aattttgcatt	1080
cctcgaagag	cacgggtccc	acttgagagg	gactgttgat	attgaatagt	gtccggccaa	1140
acggtagatt	tcattcttga	ttcgctgcat	ctcttcccaa	gtccggaagc	tgtgcgtcgg	1200
agcacctccg	tgtccagctt	tacgcggagc	gttccatatt	ggcaagcacc	ggcacgagtg	1260
gcattcttat	acttcgaata	aggagggtcat	cccggcctcg	gagagcatag	cattgaggcg	1320
ttctatagct	gccaaagtaat	atcggcgtct	tccatggcat	agtctgccag	atctgcaatg	1380
gtacctgacg	gatgtgcacc	tcctgtttgt	cgcttccgac	agatccgagt	agtgacgggt	1440
gcaatagccc	agcaacgtct	ccgccatctc	tccatattgt	ggcggagatc	gggaaagagg	1500
aggtagtggt	ctatcatcga	tcgaatagct	gtccgcgtac	ttctatacca	tatcggggaga	1560
gtacttggtg	tcatacttca	tattctgacc	gactttgccg	atagctgtat	cggcaaaagc	1620
ggacgcaaga	gatctaattc	gcgtttttccg	attttctcgt	cttccgcagc	ggtatgaaga	1680
aagccccctc	cgactcggca	catagcgtga	tggcacgata	ttggcccga	gtgcatcttt	1740
cgagtccgtc	tctgtgtcga	atgaaaacaa	ggcgtggcag	agaacattcg	gatgcaatcc	1800
gctatctctt	cctgggttttg	agaatcgtat	attcgtgtgg	tacgtctgtc	agtttcttta	1860
gcgaagtcct	gtagcatcgg	tgccttctcc	gaacaaatct	gtcggagggt	ctgtgcctgt	1920
accatgccgg	caaacagggtc	tgtcgcaggg	gcacgcgtag	tgtactctcc	aaccggttca	1980
gcaaagtgcg	aaattccagt	gcagcaaaga	ttcacgaacg	gctgccatat	cgggcgaagt	2040
acgtcgatag	gcttcggatc	gaagacaata	ggagcatccg	tgcggatagt	ggccaagtag	2100
cgcgagagcg	cgtttgctct	tccccctcct	gaattttctt	ggccacagct	cctttcatte	2160
atcttggtgg	gcgtatatgc	cgtctatgct	tccatactcg	gccagagctt	ctcagctgtt	2220
ttcgtcccaa	tgcctttaca	tccgggtata	ttgtcgagct	gtctcccacg	aggcccaggg	2280
taatctatca	tttgcccggg	gatgaaagtc	ccgaactttt	cgcagacttc	tgcgggcccc	2340
catgtttcat	agcaccaccc	gacttgggtc	gatagatctt	gatttcgctc	gacaccagtt	2400

gccgaaatcc ttatcgggcg taccattctg acggcaagcc cttgctcttc gcttgtttgg	2460
ccaaagtacc tatcgtgtcg tctgcttcaa agtccggcat tctacagcag gaa	2513

(2) INFORMATION FOR SEQ ID NO:1486

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 662 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...662

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1486

ttccgctaaa	agattctatc	aaggaaagag	ccttgtaatg	ataatccgag	cttctgccaa	60
agcaccgata	cgacggctat	cggttccgag	atgattcctg	cttgtgcggc	tacgatggtg	120
tcccttagat	tcaatgcagc	gttcaacctt	tttggtgata	tagcatcgca	tctgtgtatt	180
gggacatatt	acgcatcggt	tgccgacctc	gacgcgaat	aacatttgtc	ccacaagggt	240
cttgtctgta	cgctgttctc	gtaaagctgt	ttaacagaat	cagtggggag	ttcttttcgt	300
acagcaatgc	agtaatacgc	tttttctctc	gggcgatttc	agtacagagt	gtttttcttt	360
ttttccacat	ccgaccaaaa	tcgacaatat	gataataata	atgggaaaag	tttcttcatt	420
tggctttcta	tatgcaagtc	attccgggtg	aaaactaatc	aaacatggat	aatctgacac	480
ataaatatgg	ttgtgaaaca	atattgagag	gagtgcgagg	cgtccatttg	aattatttct	540
atatttgagg	agtcgggtgc	ggtaaaaaag	atgaataaac	tttttcttgt	cttcggcata	600
aagacaaact	aaaaaagaaa	acagagaata	gaagtaggga	agctcatggc	tttcgtcact	660
tc						662

(2) INFORMATION FOR SEQ ID NO:1487

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 690 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...690

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1487

ggccggctct	gtctgttggg	cgatggccgg	cataccgcac	aggatgagga	tgccaatgat	60
aatagcgatt	tgttcatacg	ttggtcgggt	atcgaatcaa	tgagtgagat	gaggacaaaa	120
gagccaatgg	gcgaatatgc	cggcgacagt	ccgccgatcg	catgtgctcc	gatcgctgt	180
gtgatgaggc	ggcggctctg	agactgtcga	gcattggccgt	gtgcgtactg	aggaagccgc	240
tccagacata	cccatggcgg	tgaaaacggc	tactgcattg	ccgtccagga	tacctgcgcc	300
gagaagtgg	gtaccagtcc	gagggctgca	ccgactgctc	cgacgcggtg	atcgggaagg	360
cgatgaggcg	ggaatcgggt	aagccgaaga	gcagcgggaag	aggaagtcca	ccttgctggc	420
aagggccggc	agcaggccga	cccttcgtat	gccttgccgg	cgaagggtgcc	gtcgggtccg	480
gcaggctccgt	ggtgagcatc	ataacggccg	tactgatgat	gagtacgccg	gggatgatgc	540
gataccgagg	tctacaccgg	tcttgccggc	gtccagtacg	gcattgagat	acgcaggaaa	600
aggttctcct	tatgctcttt	cgtttcctcg	tgctgcactc	ctccacattg	accggactgt	660
ccatttcggg	atagcggcgg	agcgtgtccg				690

(2) INFORMATION FOR SEQ ID NO:1488

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 525 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...525

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1488

cggattttcc	ggaattgctg	tcagaagtcg	agacgatagt	ctactccgga	ctcgaatcaa	60
tatcgactac	ttcatcaacg	aggatcatga	cgaggatctt	tggaagatat	attcgagtat	120
ttcaaagaat	ccacgacaga	ctctttgagg	aggctatgca	agaactcggg	aaggactatt	180
cggaggaaga	gattcggttg	tacggatcaa	gttcttatcc	gaaatggcaa	actaatgcat	240
cagttatgat	gctataatac	ggtacgaaaag	atgaaaaaga	atggaatgcg	catcgcataa	300
tcatgttgct	gttgctctac	tgggcactcc	cctcaatggg	acaaaagaacc	gtggatcgac	360
gaagtcgtat	ggatgggtgg	gagacgaacc	gatctgcgct	cagacataga	ggctacccaa	420
acgttttttg	ctcagttcgg	gcgccctctt	gagggaatgc	agactgctat	attcctgagc	480
agattgccgt	caaaagcttt	ttctcaatca	agccaagatg	gacag		525

(2) INFORMATION FOR SEQ ID NO:1489

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 375 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...375

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1489

catgaaacgc	tctctaaaag	gagaaataag	cgtggggcgaa	gggtacgaaa	caacaaatgc	60
cgatgctgat	ctttttcagt	cggacagtcg	gggcaaaggc	aaaggagAAC	ggaaagcaag	120
atgatcaaat	tcatgagtat	cgccagcgca	gtagtggcaa	ctgctactat	ctctccaatg	180
gcaatcaggc	actgctatcg	atgcaggcat	tccattaaga	agcatttcca	aagccctcaa	240
agatctcagc	tccccatcga	aggtaatgtc	gtaggtgtat	tggtcacaca	tgacatgccg	300
accacattcg	aactatcggc	tgcttgggag	aaaaattcca	cctcccgtat	ttgctacgga	360
aagagtacat	aacgg					375

(2) INFORMATION FOR SEQ ID NO:1490

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 510 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...510

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1490

atgccattcg	ggcgatgtaa	tatgggagaa	ctggtctttg	ccacagaggc	ttgcgcaagg	60
caatggaact	acgtcccgcg	tttgagaccc	gttattattg	actgaagcat	tgcttcgacg	120
ccatctcacg	gaagaagcgt	tggtcgaatg	aatttactcc	ttgaggaagt	tccgatgcat	180
acagcaaccc	tgctcaccgt	gctaagttag	ggttagaaca	aaatgatccg	tcccagcac	240
ttgagactgt	ggtaccggta	tcgaatctac	atccgaattg	gaggaacaag	ctctttcctc	300
tattacggag	cctccgccat	gaaggacatg	aaaaacctca	agaatgccct	ttgcctgctc	360
aaacaggcca	tcgaaaaaaaa	atgatgcctt	catccggcca	gactccttcg	agcgcgcata	420
ctcattgact	tggaagcgcta	taagaagcca	cccaggattt	ggattgggtg	gcagcattcc	480
gatccggaag	ggaacagggtg	cctatgctcc				510

(2) INFORMATION FOR SEQ ID NO:1491

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 988 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...988
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1491

gaaaactatc	ccgaggacaa	gaccggaaga	gaatggcagc	cgtgaaacat	ccggaaagat	60
gagtcctgccg	gcgtacatac	gattactttc	gctcgcgact	gtacatagag	aaggaggatt	120
tcatggagga	tgctcccaag	taatattccg	aatgacgccc	gggcaggaag	tacgcttgaa	180
gagttcttac	atagtcgttg	tacgggatgc	aaaaaggacg	aggacggaaa	cgctcgtggaa	240
gtatagccga	atacgtccg	ctgacgtgtg	ccggtatgcc	tgagagcaac	cgcaagttaa	300
gggtaccatc	cattgggtat	cggcacagca	cagtctgccg	gcaaggtagc	actgtacgat	360
cgtctcttca	ctgacgaaaa	cccgtcggac	ataaagacaa	gacactggcc	gagatgctga	420
acccggattc	tctcaagggtg	caaaaaactg	ccgagtagag	cctttcctcg	cggatgccgc	480
tccgggatcg	acttccagtt	ccagcgcata	ggttacttca	cggtaggatcc	ggatagtcgc	540
cgggggcatt	ggttttcaac	cgcacggttt	cgctgaaaga	ttcttggcga	aagcccaaaa	600
gaacgcataa	aggacattat	ttatctcact	cgcaccttgg	gatttattca	gtggtgcctc	660
gcgcacctga	actattggac	tatcattttt	tgatggccat	cgagagttcg	tttattccgt	720
tcccgtcaga	gattatgtgc	ccccggctgc	atggatggct	gccacggggc	aaaatggact	780
gaacttttcc	tcgttatcct	gttcgccacc	atcgggtgccg	gaataggagc	tgcgtaaact	840
atatactgtc	tctattgttc	ggtcgcccta	tcgtctacgc	gttgccaaca	gtaagctcgg	900
gcatttgtgt	ctgatcaacg	aagaagaaag	tcgatatgca	gagcgatatt	tcgacaagaa	960
cggagctgtc	tccacactgg	aggacggt				988

(2) INFORMATION FOR SEQ ID NO:1492

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1103 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1103
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1492

cggccaaggt	tttggaaaga	gaacgaatca	cccctaccct	acaatcgatc	gagatacggg	60
catacgcatac	cgcaattcca	agttgcccga	tccggccaaa	taggcaatgc	gggcagcttc	120
ttcgtaaatac	cgggtggtatc	cgccgagaat	tcaataccct	gcaaaccgaa	tatccctcca	180
taccaagcta	tcctcaccgg	atggcagcgt	gaaagttccg	gccggatggc	tgatcgagca	240
atgcgataca	aagggcatcg	ctccgggtgca	gtaggtgtct	atgagcatca	ggcttggctc	300

tggtgaacta	tggcggagct	acgggcactc	aggtggggagc	tttgcagaag	agatcatagg	360
caatgtccga	cagaaattcg	gaatcactct	cctccggagg	tcaaatacat	tttataatat	420
caagtagcaa	gccttttgcc	ccatgcgttg	catattatta	ggctcaggca	ccagcaccgg	480
cgtccccgaa	tcggctgtca	ttgtagggtg	tgctgtagcg	aagacaggca	tgacaagcga	540
cccgtacttc	tcttcttata	atcacggatg	cagggaaacg	aatcctcacg	actgcagccc	600
ggacttttcg	caacaagctc	tgtttgccgg	catcgatcgc	tcgatgccgt	tttgctgact	660
cacgaacatt	ttgaccacgt	cgggtggctcg	acgatctgcg	caccatctgt	tggcacgcg	720
aacttgctgt	ctatgcgaac	agaatgtatt	ggactccata	cgcgacaggc	tgcaactatgt	780
attcgcaaaa	atccttatcc	gggcactcct	ctactgaaac	tatgcgaagt	aaacccgata	840
tgccgtttca	agtggcagac	ctgacggtag	agcctcttcg	aaaatgcatg	gcaggttgcc	900
gatactcgga	tataaaatag	gagagatggc	ttccttaccg	atatgaagga	tatagcagca	960
gaagaaatcg	agtgcctgaa	agctgtcgac	ttctttttat	caacgggctt	cgctaccgga	1020
agggaacatc	ttcgaccag	accatagagc	aggctattga	cacaatagga	caaatcgga	1080
tccggaaagg	tgtcctgac	acc				1103

(2) INFORMATION FOR SEQ ID NO:1493

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3308 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3308

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1493

attgtaaatg	aagctataag	tcccaaacga	tgataatcac	cgggaatgaa	aagccggctct	60
tgcgcttacc	caagatgttg	tatgagggat	tgacaaggga	ttgcgagtaa	tgctcgtagt	120
gaatgtaatc	ttatccaaac	gacctttttc	gccagtttct	cgaagacgat	acgagtcaag	180
aagacagccg	taatgaagaa	gcgataagac	cgataatcaa	cgtagtgga	aaaccgcgaa	240
tcggcccgtc	ccgtagagga	ataggatgat	accggtaata	atagtcgtaa	cgttgagtcg	300
aagatggcag	agaaaagcgtt	gccataacca	tccgtaacgg	cacaatcgga	gtcttaccgg	360
cacgaagctc	ttctttgata	cgctcgaaga	tagtacgttg	gcatccacag	ccatacccag	420
cgtcagcacc	aaacctgcga	tcccagagagg	gtcagcacgg	catggaaaga	agccaatacg	480
cccaatgtga	gaagctgttt	acaatcaatg	cgccgtttgc	gataagaccc	ggcaagaaac	540
gtaagccaga	cacatgtaac	acatcaggat	aaccaaaagc	agcaggaaga	caagaatccg	600
gctttaatgg	actcggcacc	cagcgtagga	ccaatcagtt	ttcctgttcg	atgcttaccg	660
tagcatccat	tttaccggag	ttgagtcgtt	ggcaaggtea	ccggcctcct	ccacggtgaa	720
gtgcccggag	atctggagcg	accgcccgtg	atctcatcat	tcacgttcgg	agcagaataa	780
accaaccatc	caaaaacgata	gcgattgccc	gtcccacgtt	atccttttgt	atagcgccca	840
tttacgagca	ccttcttcat	tcatcgtcat	cgaaacgate	ggtcggaacg	accgaagtca	900
ttttggatat	cactcttggc	ggaagtcact	aatcacctcc	caaatcagga	tctcccgtac	960
gattggtacg	aatagcatag	gttcgtagag	gtcgggtctcc	tttttggttt	cgggggtcttc	1020
gattgctttg	caccacagag	gaaaagcaca	tcttcacgtg	taaccttcag	atcgtgagtt	1080
gtcggagcat	ttcagatatc	tgagccatat	tagcacgacg	agccacacca	ctactgcacc	1140
gccacgattc	acgggagtaa	gcagagagaa	gagtgctctt	tacgagtagc	atccttggcc	1200
tctttttgtg	ctacagtagc	agaatagcta	cagcttgtac	agcagcagaa	tcggctgttg	1260
cagctacaga	gtcatagttg	caggctctgt	ttccggggta	gcacccgtgt	tgttcatagc	1320
caatcgctca	gacgatcatt	ggcagcgatc	aagtctccgc	tgacctcttc	gatttgtagt	1380

tacgccagaa	ctgtaggttg	gcactgcggt	gcaaaagggt	agaacacgct	caggggtcttt	1440
cactccgggg	agttcgacaa	ggatacgccc	tgcccttcca	atcgctgcaa	attaggtgca	1500
accacaccga	aagcatcgaa	cgagcacgga	gcacattgaa	cgaagcttct	acagcactat	1560
tatatatttct	ttgagcagac	gcactacgtc	tgcatccgta	gactttgctg	taatctgtcg	1620
cgaagggtcac	ccgaaccgaa	gataacggcc	aagcgaccgt	tgggatgagc	ttgcgatatt	1680
ccttcacgaa	aatatcgatg	aagtcggatt	gctcctgctc	ttggcagcat	tctccagagc	1740
tttgttgaag	ttgggatcca	aactttgtta	gagagggttac	gaagcagatc	gcttgctgta	1800
agtttcaaga	taagttcata	cccccttta	agtcaaggcc	aagaccaatt	tgctgggctt	1860
gacttctttc	agcgtgtagc	cgaaccagac	cttctcattc	gacatggaat	cagataggcc	1920
attccggcaa	catcgcccat	cgccttagcc	ttcttttcgt	acggttcgta	acgaaagaga	1980
atgacaggta	aaacgcacag	atgatggccg	agccgatgtg	ataacaatca	caaatccttt	2040
gttttgcaat	ttgtctgtac	ttattttatt	gttagatttt	tttcatctat	acaggcatat	2100
tcataggcgc	aaagttacgt	ttttttttac	actatctctc	actttatata	tagaaatagc	2160
cgatgattcg	ggtcatcggc	agcaaaaaaca	gtgggacatt	gcctcgtaca	gcaaattgatt	2220
gggtggctct	ataaccaaga	gccacagcaa	ggatctgcag	cctacccact	tccgagctgc	2280
tttaagagcg	atttttcgaa	agcatatatg	gcaaaggctt	ctgcttcata	tggaagagc	2340
aaacctgccg	gtgccaaggc	gacggaaaag	gctctgcgca	gccgtattgg	ggctatacgt	2400
actatgcgta	tgcaagtgcc	cccttgttcg	cgagctatcg	tctcggcaga	aaaagcatgg	2460
cagcggcata	ccccttgccg	agcagagagg	aatgaacacc	aggcgggtga	tcgtataggc	2520
tttcccttcg	gtctgccatg	gcaacgagcg	tattcggccg	gcactctgatc	attcacagcc	2580
atcaccccca	aaggagtccc	gctatatcca	acaggaaggc	ttctcacggg	ctatatcctc	2640
ttgagctcgg	tctcgcccg	atatgctccc	tgccactgag	gattgtcggg	agcaacatcg	2700
tgtgccgggc	atcctcccat	agggcaagaa	tgctgtcgta	atcgatggaa	gagcccgacg	2760
gatccgataa	tgatcagtcg	agagacaata	tccgtctgct	tgctgtccaa	tgctttctct	2820
gtcatgtgaa	atcaataaga	tggtgcaccg	tctttgtgcc	tttgggatac	agtctgttgc	2880
acgagtgcct	cgccgattcg	tccaaatagc	tgttcggttc	atcgagtacg	aggagtctcg	2940
acagcttacg	atagctctgg	ccaaaaggac	acgctgtagc	tgtccgccgt	caaatccgat	3000
atggggcggt	tgagcagatc	ggttatccgg	agatcggagc	agcaccggcc	agaagttcct	3060
tgtgcgaacc	tcgattaccc	tccccaaaca	accggatcga	atgacctcct	ccacgcgaat	3120
aggaaaagct	ctgtcgtacg	attgagctga	ggcagataac	cgatcgaagg	ccttacacac	3180
gggatccctn	ccgattgtag	aacgtaagac	tncccgatcg	cagtggcagc	angcgattat	3240
tgccctttacg	aggggtggact	tttccccacc	atgcgtccta	cgaaccgaga	aatcgccacg	3300
aacgatata						3308

(2) INFORMATION FOR SEQ ID NO:1494

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2310 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2310

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1494

actgagatat	gagcctgaat	ctttcgggaa	actaccgccg	gaaagtctgc	cccgtttgtgg	60
gagaggcttt	ctgtgcggtc	atgatcttcc	cgatatgcat	gcgactgtag	gacgggtacaa	120
ctgcaatcgc	atcacttcga	attccttgac	gacattatca	tgaactgtctc	tgtctgcctt	180
gtctcaggga	aatagcaatg	cctccgcaga	ggaaatactc	cdaatgcatc	gataaggaaa	240

tgtccccgatg	ggagaccgaa	aaaagaaccg	attatcactt	taataacaat	agttcaatta	300
ctatggcaac	tccagaattt	aagtatcaga	agcctttccc	tatggggatg	atacgacaga	360
gtattattttg	ctgacgaagg	agtatgtgtc	cgggacaagt	ttggcgatca	tgatgtcctg	420
aaagtggagc	cggaagctct	ggattacttg	cgcggacggc	ttttcatgac	atcgctttct	480
at ttg cgacc	gagcatcagc	agcaagtggc	tcggattctg	tccgatccgg	aagccagcga	540
aacgacaaat	tcgtggcctt	gactttcctg	cgcaatgcgg	aggtttcacc	aagggacagc	600
tcccttttctg	ccaagatacg	ggcacggcta	tcatcctggg	aagaaggggac	agcagggtctg	660
gacgggcggt	catgacgaag	agcagcctcg	catgggtgtct	atgataccta	tacgcaggag	720
aacctgcgct	attcgagaat	gctcctttgg	atatgtataa	ggagggtgaat	acgggggtgca	780
acctcccga	cagatcgacc	tgatggccgt	ggacggcatg	gagtacgact	ttcctgcata	840
gccaaaggag	gagggtcggc	caataagacg	tatctctatc	agaaacgaaa	gcactgctca	900
accccaagac	gctggtgaac	ttcctcgtgg	aaagatgagt	tctctcggta	cagctgcctg	960
tcctccgtat	cacattgcat	cgtgataggc	ggaacttcgg	ccgaaacgaa	cctcaagacc	1020
gtcaagctgc	ttcggccaag	tactacgaca	atctgcctac	ttcgggcaac	gaaggcggcg	1080
tgctttccgc	gatgtcgaac	tggaaaaaga	agtcttggaa	gctgccttca	tctgggactg	1140
ggtgctcagt	ttggaggcaa	atacttcgca	cacgactgcg	catcatccgc	ctgccccgac	1200
atggagcaag	ctgtcccgtg	ggtatggcgt	cagttgttcg	gcagaccgca	atatcaaggc	1260
aaagatcaat	aaagcgggat	ctggatcgaa	aagatggaga	ccaatcccac	acgcctcatc	1320
cctaattccat	gcgtgagggg	acagagggta	cgggtggtaa	ggtcgatctg	aacgtccgat	1380
gcctgagatt	ctgagagagc	tgtcgcagta	tcctgtttcc	accgtttgtc	tctcagtggg	1440
acgattatcg	tggggcggtg	tattgctcac	ccaaactaaa	agaacgtatc	gaccgtggcg	1500
agggtttgcc	cgactatata	agaatcatcc	catctactac	gccggtccgg	ccaagacacc	1560
gaagggggagc	cgagcggttc	gttcgggcct	acgacagcgg	gccgtatgga	tagctattgg	1620
atctcttcca	atcgcatgga	ggcagtatgg	tgatgatagc	caaaggaacc	gctctcagca	1680
agtacaggat	gcgtgtaaga	agtacggcgg	attctcctcg	gcagtgttgg	aggcccagca	1740
gctattctgg	ctcaggacag	cattagaaag	tggagtgtct	ggaatatccc	gagctgggta	1800
tggaggctat	ttgaagatcg	aagtggagga	cttccccggc	tttattctgg	tagatgacaa	1860
ggcaatgatt	tctttactca	gataagagag	aagtgttaagg	gttgtgcctt	gattgatatt	1920
gtacgttttt	tttactgaa	agcatcgtga	ggctatgtcg	gagagttcgc	tctccggcat	1980
agcctctgct	gcttcttttt	agtttacctt	gtttcctaag	caaacaggct	cggctcatgg	2040
aaacgaaaata	catcgtattg	cactcaaata	tcgccccgat	tcttttgcct	cgatggtcgg	2100
tcaggagcat	tgtccgctac	actcaaaagc	tccatcgtac	agcaaaagac	agctcagcct	2160
atctcttttg	tggcccgctg	gggggtgggaa	agacctcttg	tgcaccatct	tcgcccgtgc	2220
catcaactgt	ctgagcggtg	ccgatggaga	agctgtggca	tcgagtcgtg	caagcttcga	2280
tgagcagcga	tcataatata	tataactgat				2310

(2) INFORMATION FOR SEQ ID NO:1495

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 555 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...555

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1495

ccggccttga	tcgtcgaatc	catgcgtcat	ctcgtgtccg	atcactacgc	gataccgccca	60
taattgacag	catcgtctgc	atccatgttg	aagaaagggg	ttggaggatg	gctgcaggaa	120

(B) LOCATION 1...395

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1221

caaaccggcc	accacattgc	ccatcatacg	gaagtgagta	tcgcgccacg	accgagcctg	60
ttgcccagat	aatagcgatc	ggccacattc	ataccgccaa	atagcctatt	ttaccatcta	120
taacggctac	cttccgggtga	ttgcgggtgtt	tacgcggctg	gacagtatgg	ggaagaagac	180
cggcataaaa	ggatagcttc	cactccggct	cggcgcagtc	gtttccagta	gccacggccc	240
gtagccacga	acccacatga	tcgaatatga	ccctcacctt	cacgccctct	tgcacttgcg	300
tataagcaga	tcggacaggc	gactgcccag	atggtcaccc	tcttgacgta	gaactgaata	360
tgcacatggt	ggcgggcagc	ctctatgtcg	cgaag			395

(2) INFORMATION FOR SEQ ID NO:1222

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 523 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...523

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1222

gggcaggaaa	accgagtgga	caattatttt	tcggcatcat	cgcctccgga	tcacgtatt	60
tgtcactatc	tacaaagaca	ttcgtcgcag	aggaaagtga	acgactcgcc	acttttctct	120
ctgatatac	tctcattaca	atcccattat	cattgttctc	gtaagtctct	cacctttttt	180
cttgcccttg	tatttttggt	atggttcttt	ttagctgtgg	caccaagcga	aaactgcctt	240
cacaatccac	gccgattatc	ccaagcggga	gttccgtgca	gcttgatcc	aaacgtctat	300
caggagagaat	acgctcgtct	ctctcctgcc	gaagcacgtc	gtcgtgatc	gggaggttgg	360
ataaactcaa	agaagccggc	tgtaatgcga	tcttttccag	atcaggcccc	anagcgatgc	420
ctggtacgaa	tccgctatag	accgtggagc	cgnttcctga	caggccgaca	gggacaagcc	480
cctacgcctt	ttgggatcca	ctggctttta	tggtcagcga	atg		523

(2) INFORMATION FOR SEQ ID NO:1223

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1035 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

aagggggagg	tgcccaagcg	tttgcgctgt	gcaccaatcc	tcgtttgggc	gaactggtcg	960
tgattccgga	cataggctcc	ccgtcttttt	cgcaataaat	gaagacgttc	gtccgggagc	1020
ggcacatggt	atgacaacca	agcaccggaa	atgcgggctt	tactccgggc	tgtcggaccg	1080
atttcgctcc	gggcagtagg	gtggaaaacc	tgccgaatat	caccatcatc	cgctcatatg	1140
caggctgttg	ggtatagagc	ctgcacccaa	cgatgcgacg	aaacgttgct	gaacggcctg	1200
atccgagaca	aacgaccatg	atcatgcaag	ggaaaaacgg	cgcaacaata	tcgccgagta	1260
cgctctctac	atgtgcagat	agaggatctt	atacgtgcc	acgaactgga	tatgcagcgg	1320
cttgcgccac	tg					1332

(2) INFORMATION FOR SEQ ID NO:1220

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 453 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...453

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1220

gctccttgcg	agcattctcg	tgtttggctc	gatggcattc	gccaagttc	caaaggaaat	60
gacaagtcta	aagacgaaca	catccttacg	tgggcgttcc	ggaagagttg	gtgatcgata	120
ataacagtat	tgtagctact	tataattttt	attgactcca	tttaatggaa	tgaccatggc	180
ctgcgcttct	ttcttcatgt	gcaggatttg	ttgccttatg	tgggctatac	gatcaataga	240
atagattcca	ccctacggca	gatgagaaga	actatgagca	ggtggcagcc	agcagttcta	300
catctgtata	tggggcaata	aggaacagac	agaagtcctg	tacagcaggc	tctgcccacg	360
atccacaagg	aggatttgag	ctttggctat	gggtggacgg	cgaggaagac	tattacgatg	420
agccgatgta	ccttgccgaa	cggaaacgcc	ctt			453

(2) INFORMATION FOR SEQ ID NO:1221

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 395 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...560

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1218

gaataatggtt	attaaagggtt	gataattcag	tatcaactga	ccggatgata	tcgatagata	60
taattgaata	atagaaaatc	tgaaagaaaa	atccgcttat	atcgacacaa	caatggagga	120
gaatcttttt	atgtaagcca	tgctttgcct	aatagcatga	gtatgagggtg	gaagtggcaa	180
aaaaaacaaa	atcggcaaaag	agagggaac	agctctcttt	ggccgatttt	gtcttttcgg	240
taataaacaa	agtcttttta	tagaccgtgc	tcgccccaaat	aacgctctgc	ttcgtagcag	300
ccttgcaacc	tgatccggca	gccgtgatag	cctgacgata	gtggggtcgg	caacgtcgcc	360
ggcagcaaat	acgccgggaa	cttttgtgcg	cgggacgaac	cttccgtcag	gatataaccc	420
acttcgtcca	agtcgaggta	gcggcggaaga	tcttcgagtt	tggcgtatga	ccgatagcga	480
ggaaaaaac	tcgatggcaa	tgtccaccat	ctcttcgtcc	gctctccttt	gcgtttcaca	540
gatgagcacc	ttccacaccg					560

(2) INFORMATION FOR SEQ ID NO:1219

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1332 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1332

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1219

tttataaaaa	tgagacagca	tttatctcta	tttcctttta	tcttgtttcg	cttcttgcct	60
tctcttatgt	cggttgcaga	acagtcgcag	aaacacctag	cagtcggaac	ggtacgtcgt	120
agtcctgtct	ttggacggct	tccgaccgac	tataccgatc	gggcacgtac	accggcggtg	180
gatcggatgg	cacaggggga	ttgagcgggt	cgtccaacc	atgcttcccc	tcgcttacat	240
ttcccatcat	tacagcatgg	ctacggggct	ttaccccgat	catcacggta	tcgtgccaat	300
gagtttgttg	attcgctact	gggcatcttt	cgtatatccg	accaaaagcc	gtggagaccc	360
ccggattttg	gggcggcgag	ccggttttga	atcggccgca	cgccaaggca	tccgtaccgg	420
tgtctacttt	tgggtaggat	cgaaacggct	gtgaacggaa	atcggccgtg	gcgggtggaaa	480
aaattctcct	caccgttccg	tttcgtgacc	gtgccgactc	cgtcatcgcg	tggctcggat	540
gcccgaaaaag	gagcgaccgc	gcttgctcat	gtggtacatc	gaggagccga	tatgatcgga	600
cacagccaaa	cgcccgaag	cccgtgaca	ctggcaaggt	agagcggttg	gacagtgtgg	660
tcggctattt	ccgcaagcgg	ttggacctct	gcccatagcc	gcacagaccg	acttcatcat	720
agtatccgat	cacggatggc	cacgtacgaa	aatgagaaat	gtgtcaatct	gtcgcattat	780
ctgctgcgga	cagtttcctc	tacatggcca	ccggggcctt	cacccacttg	taccgaagcc	840
ctcctatacc	gagcgagcct	atgagatcct	gcggggccatt	cccatatata	ggtttaccgc	900

gcttcttgaa	tgccctccaaa	gcctccggct	tgctactgtc	tatccagcag	ctttgtacag	60
gctgatcggg	tcccaacgac	actgcgctcc	gtattcatca	gcagacggta	ttggatcact	120
tcgaactgta	gctgccccac	gggtcccgtaa	tcttgcgccc	gttgaactga	ttgggtgaata	180
gctgtgccac	cccttcccca	tgagctgggtc	gatccctttg	gccagttgct	tggctttcat	240
cggatctgat	tttcaatgta	cttgaatagc	tccggcgaga	agcttggcaa	accgggaaat	300
gaagctcttc	gocggctgtc	agcgtatctc	caatctgaaa	attccgggtat	cgggcagacc	360
gataatatca	ccggcatagg	cttcatccac	cgctccttgc	gctgcgccat	aaaagccgta	420
ggactgctga	atcggaactg	ttgccgaggc	ggatatgctt	gtagttcgta	tttcgttcga	480
accgaccgga	caaatcttga	cgaaagcaat	acagctgcga	tggttgggat	ccatgtttgga	540
tgtatcttga	aaacaaaacc	cgtaaattcc	tcctcgtgcg	gatccacttc	ctctccactg	600
cagccaccgg	ctggggagaa	ggggcaatct	cgacgaacag	ttcagcagct	cctgcacacc	660
gaagttgttg	agtgccgaac	cgaaaacacc	ggagcaagct	gtccggccag	atattcctct	720
ttgtcgaaag	gctgaaaaca	ccatcgatca	attcgatgtc	cgnacgcaac	ttctcagctt	780
gagttc						786

(2) INFORMATION FOR SEQ ID NO:1217

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 581 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...581

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1217

gggtggccgaa	taacatctgc	cgaaaaaaac	actgtgcca	agtgcactcg	tatgcttccg	60
ggacagtaca	ttggaaaacg	aggctcaaag	gtacatcttt	cgatggcttc	ggcatagtgt	120
tcgttgatca	ctcgcccttt	gagtttctcg	tctcggtcag	ttcgcccttc	tccagtgtaa	180
aaggctcggc	gaggaggtaa	tgtacttcac	cttctcgtaa	gcagcaagcg	aatcttgtgc	240
agccttattc	tggccatcat	caggcggttg	atttcaggat	ttgcagccat	ctcgccacag	300
acattgtccg	ggcctgttca	agtcctcttt	tgatggcagc	ctgcttacca	attcccaatt	360
cggatagacc	aaggcactca	catacttgaa	ccgtcaccta	tcaccgctat	ctgttcgatg	420
atgggatcct	tggtcagcat	ccctcgatca	tctgcggagc	tatgtacttt	ccgttggcag	480
tcttgtagag	tcttttatcc	tctccagaaa	ataaagcggt	ccatccggat	ccatgcgttg	540
gcattcgccg	tacggaaata	gccgtcaggc	gtgaaggctt	c		581

(2) INFORMATION FOR SEQ ID NO:1218

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 560 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1433

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1215

atgtcttcga	ccgtggcccc	ggaagcacat	atcatcatgg	atacccttat	gaagtatcat	60
catttcgata	tacagtgggg	caatcatgac	atgctgtgat	ggaagctgct	gtgggcaatg	120
cctcctgtat	ggccaatgtg	gtgcgtaagc	actgcgctat	gccaatttgg	atacgctgga	180
gagcgggtac	ggtatcacct	tttgcccttg	gcgcgttttg	ccatggacac	ttatgcggac	240
gatacctgtac	cgtattttaa	cccaaactgg	ctcaggccga	ccagacgtat	gatgcaagag	300
cgtctatctg	atcagtcaga	tgcacaaagc	catatctatc	attagttcaa	gctggagcac	360
cagatcatag	cccgtcatcc	ggagtacaag	atgacaatcg	ggatttgttc	catctggtga	420
acttcaccga	tggtagcatc	agctgtcgag	tggcgtatat	ccgatgttgg	atatgaattt	480
cccgaaccgtg	atccggccga	tccgtatgca	ctgacagagc	aagagcagaa	tatcgtagac	540
gtctgatggg	ctgttttatg	cggagtgaag	agctgcaaaa	ccatctcaat	gcctctatcg	600
tcatggcagt	atgtacctga	cgtataatat	gaatctgtct	accatgcttc	tatccctctg	660
aacaaggata	agtcgctcaa	gaaggctcgg	taggggacaa	gacctatgcc	ggacgcgaat	720
tgctcgataa	ggtaggagag	tgatccgtac	cgcataatgt	gctcccgaag	aaagcgatca	780
gagattgcgg	ctgtggacta	catgtggtac	ctctggtgcg	gaccggattc	tcccttttcg	840
acaaagctat	gatgactact	ttcgagcggt	acttcatcga	agtaaggcta	cgcatacatga	900
ggaaaagggt	tactactacg	tctatcgtaa	gagaaaagccg	tttgtgagat	gatacctcaa	960
gagtttgggc	ttgaaggccc	gatacgcata	taatcaacgg	gcacgttccg	gtgaaggcca	1020
agaaaggggg	cttcctatcg	gagctgaagg	caaactgatg	ttgatagatg	gcggattcgc	1080
aaggcatatc	agtcaagtac	ggggatcgcc	ggctatacgc	tgatattaac	tctcagggat	1140
tgcatcttgt	gcagcacgaa	ccgttttagt	ccacaccaag	gctatcgaag	agatggagga	1200
catcaagagt	atcacgggtg	tacgtaggtc	acatcccac	gtatgctggt	gaaggatacg	1260
gacaatggcc	acttctgagc	aagcagggtg	aaaacctcaa	aaaactcctt	caggcgtaca	1320
gctcggactg	atcaaggaac	gaaaaaaata	gcgtggtaag	agagacagga	gtgctttaat	1380
ctcggattat	ggcggacgga	tatgtattcg	ccttcgtctc	catgccattt	gct	1433

(2) INFORMATION FOR SEQ ID NO:1216

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 786 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...786

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1216

tacggcggga	agtatccgcc	actgcccga	gagacaaagc	acttaaaca	ctgcactcac	2040
agaacagcag	atagctccta	agcaaacaca	tcgaatagac	agactcacac	tatggacaac	2100
aaacgacaag	caaaatagaa	agactgctcc	agaaagaact	cagcgagata	ttcctgggga	2160
tgcgaaatcc	ctgccgggcg	taatagtttc	ggtaacgaac	gtacggtaag	ttccgacctc	2220
agcatcgcac	gtatacacct	gagtatatc	ccatcgagaa	gagcagcgag	attcttgaga	2280
gcatcaaaaca	caatacaaag	acgtccgtta	tgacctcggg	cagcaagttc	gtacccaact	2340
gcgcaagata	ccgatttgac	attctacata	gatgactctc	tggattatct	ggagaatata	2400
gccgtttgct	caatcaataa	gaaacggtcg	ctctctatca	agacgctgtg	acttcccttt	2460
tttcatagcc	cgccgttact	tgttctcccg	caaaagatta	gtgcggtcaa	tgtggtttcg	2520
ctcgtttcag	cgatagctgt	ctgcgtggct	cttcggcctt	ggtttgtatc	ctctctatct	2580
tcaatgggta	cgaagcttga	tcatgacgca	ttcggcagta	acggatcccc	ctcttatgat	2640
tcgttcgcag	acaattcgct	gataaaggca	gatgataaaa	ctctgctcac	agctccgaag	2700
cgggaagggat	cggttcgtac	agctttatcc	tcaccggaga	aggtttgtaa	agacgaagta	2760
tcgacagcag	gctgtttctc	tcatgggtgt	ggagatcgct	atccccgcac	tgtgaagata	2820
gactccatcg	tctttgcagg	caa				2843

(2) INFORMATION FOR SEQ ID NO:1214

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 568 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...568

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1214

aaaccgaaaa	gtttacgcgc	cacgtttttc	ggtagtcgca	atgatctttt	tttcgcgcgt	60
aaatgccaaa	gactgtcggc	ttcgaggtag	agatcgaatc	ggatcgctct	ttcggagctg	120
acagtctttc	ttctccgaga	agaaaaagga	acctgtggga	gtcgtcacc	atgggttttc	180
ttgctatttt	tgttcgattc	ggattccatc	ctaagaggac	gaccaacctc	tgattgcact	240
cttaaaatcg	tatacatgct	gatgacggct	gccgtcagtg	ctgtcattat	cagcagaatc	300
gcaatccact	gaaggctact	tcgtggattc	tggtcgtctc	tttgtacctc	tcttggggct	360
tattgtctat	atctttttcg	gacaggatca	gccagacggc	gtattgtcag	ccgccgtata	420
tacaagcgca	tcattgctgaa	gtcactatc	tgtccatccc	cgaagcacag	ttggaagcca	480
tgaacaatat	cagctgaatc	ccatcatgaa	gctgatcaac	aacaactcgg	acagccccgc	540
atgtctcagct	cgccgccgga	tatatcca				568

(2) INFORMATION FOR SEQ ID NO:1215

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1433 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

atcgttaccc	atcatttcga	tatatccttt	gacggatatg	tgccccgtgc	acctgccgta	420
gccgtaaata	ggcccatggt	ccgggagaaa	ggagcttacc	gtttacaaat	acgtccggtc	480
tttgctggg	tctacactgg	agaggacgat	attggcctta	tatgtatngc	ccgacatgan	540
atttggtctt	gtggaatcac	ttnggccgag	atact			575

(2) INFORMATION FOR SEQ ID NO:1213

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2843 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2843

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1213

tgggtacggg	caagaccact	ttcatcaaag	ccgtatgcga	ggagctgggg	tctcggacgt	60
tatcaatagt	cccacctttt	cgattatcaa	cgagtaccct	cggatcagac	gggcgaactg	120
atctatcact	tcgactgcta	ccggctcaca	agatagaaga	cggcctgaat	ctgggtgtag	180
aagactatgt	cgatagggta	gtctctgctt	tatcgaatgg	ccggagcttc	tggagccgat	240
actccgaacg	atacgggtca	tgtccgaatc	gaagagctgg	aagacggcaa	gcgcggctta	300
cattctaagt	cctgctccga	tgtcgttcgt	cattcgggac	ttcatctcat	cctctttgcc	360
atagtccggtc	tggtttcgct	actgactgct	ctctctgtcc	ggattggcta	ctgagcagcc	420
gaggcgcacg	catttggatc	atgccttcgg	caagcgaggc	gcacgtatct	tctatattat	480
aataggagtg	ccttgctgag	tgctgcggct	ttcgggctga	tcaaactctg	aaaagtgtct	540
gcagtaaaat	cgatcatcata	aaagagaccg	cccctgctca	gcctcatttc	gtatatctct	600
tataacctct	tcaaggggaa	acctctacct	ttacgggtgga	atcaatttca	gaccgatgga	660
ttacgaaata	gagaacaacc	atgccgcagt	attcgcaggg	gaagtatcga	agtgatatgc	720
ggctccatgt	tcagtgcgaag	acggaagagc	tgtacgccc	tctgcggaga	gctaagatag	780
cgcgcgacag	gtggagatat	tcaagccgac	catcgatata	cgctacgacg	aaaggatgtc	840
gttttcgcatg	acaagaatgc	tatcgcttcc	acccccgtgg	acattcggcc	aatatactgc	900
tgtatccctc	ccaagtggat	gtggtgggga	tgacgaagcc	cagttctttg	atgagggtct	960
tgtggaagta	gcccagcaat	ggccgatcag	ggtgttcgcg	ttgtgatcgc	cggattggac	1020
atggactttg	acgtcagcct	ttcggaccta	tgcgggctt	gtgtgccata	gccgactcgt	1080
gaccaaagtt	catgccgtgt	gtgtggaatg	cggccgattg	gccagctttc	tttccgtcgt	1140
gtccaaggcg	atcagcaagt	gatgctgggc	gaactgacga	atacagtccc	ctctgcagaa	1200
cctgctacag	gaaatgcagt	tctccccaca	aacagaagaa	atccattcga	caatatgaat	1260
agcagacatc	tgacatcaca	atcattgccg	gcctctccct	ctttgtactg	acattgggcg	1320
gctctccgta	gcccacaacg	atacgcagt	gactctcggc	ggaaaagctct	ttcttcggcg	1380
tggatacaac	gttcggccga	atatcaagcg	ctttgcattc	agcatacaac	atcgctacgg	1440
aaagagtggg	cgctctaccg	gcagaacgta	acaaggagat	aggccttatg	ccatcgtaac	1500
ggacatagac	gaaaccattt	tggacaatac	gcctaaactc	gtgtatcagg	ctcttaaggg	1560
caagattaga	tgaagagact	tgggggaaat	ggtgtgcaca	ggccgatgcc	gacacacggc	1620
aggagctttg	tctttcttcc	tccatgcagc	gaacaagggg	atcgagtctt	ttacgtcacc	1680
aaccgcagag	acaatctgcg	cgaagcaact	cttcaaacct	tcagcgttac	ggattccccct	1740
ttgccgatga	agaacatttg	cttagaccca	tgggccatcc	gacaaagaac	cccgtcggct	1800
caaaatacaa	gaaagtatga	aatagtattg	ctcataggag	acaacttggg	cgacttccac	1860
cattcttcaa	tacgaaagaa	gagtcgggac	gcaaacaggc	tctgggcctg	aagccggggg	1920
gttttgccgg	cacttcatca	tgtctgccaa	tcccaactac	gatcttggga	accggcatgg	1980

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...696

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1211

gatctccctc	gaatcgatca	atagtcgtgc	atagccacgc	gtgcaaacaa	aaagagcatg	60
gattcgaaca	ggaacggcgt	agccacagct	gcagccggag	ggatcgcttg	tcattgcaca	120
gcaagacccg	gtctccaagc	gtattcatTT	accccccaag	tatcctgcaa	gctcattgat	180
cgagaatacc	tttagcgaat	agtcataaaa	gagaatttag	agataggaaa	ctgcatcgaa	240
tccattgccg	gtcgcgacgg	caaacatccg	agactgttta	gtaccgatac	cggtgtataa	300
cgtacgagag	catggctccg	gctcttccca	ttccggagca	aaaccattcc	ctctttcaat	360
agcgtcgttc	gccgaagatc	gtagttccga	tagaacgatg	gtgcttcctt	cttcgatggc	420
cagctcgaaa	tcgccgctca	tcccatcgaa	agctcacaaa	aatcagcaga	atcggagaag	480
aaacgctctt	catctctctg	aacagcgatg	ccaaccggcg	aaactctctg	cgaatctgcc	540
cctatcgtcc	gtaaatgtag	ccatccccat	cagaccggca	atcttgacct	ggtatcggag	600
ccgcgtgcc	aaacagcctc	cagaacttgt	ggcaattctc	cggcgtaaag	ccgcttttgg	660
tatcctccga	tgcgatatgc	acttccataa	aaccgg			696

(2) INFORMATION FOR SEQ ID NO:1212

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 575 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...575

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1212

cacccttgaa	gcgtttcgtg	ttccccctgca	catccttata	ttcgatatag	gaagaggatc	60
ggggagagct	ctgacacgta	aggtagtcctt	tgccatttga	tggtacggcc	tcctgattga	120
gctgtgacgg	aaataatggc	ttcgctgcta	ctttcgtcgg	ccgtgctatc	cagagattgc	180
cacggcgagt	gagcgtccat	tgttgatcgt	tgcagaaacg	ttttgctgag	ccacacccgg	240
tacgggatat	tgatcggatt	gtctataaccg	gcatagagta	cgttcatcat	cgtcgagcaa	300
cggaggccat	tggttccgta	acgaagtatt	cgctttcaaa	gtccggcgaa	tcttaacccc	360

tcttgctgag	tcaaaatcct	aggcacatgt	ccaaggcggt	tggcagcaga	atttcggctt	480
tatacctatg	cggctgtcaa	tggccaactg	cgttggcaag	ccaccgagag	attgagttta	540
ccaccggtat	cgattatcga	caggtacagt	ggaatgcttt	cgataataaa	cgttctcgct	600
taaaggaagt	gctcgatacg	aagtgatgga	caatgtcttg	tcaatggatt	tggcagctat	660
cctctctaca	gcagtacgcg	ctcaggctca	atatggctgt	tccgatgcat	ggattcggcc	720
ctcagtacgg	tggatgcttg	agctgaaagt	ctccgagcga	ttcggctttg	ccgtcgggtat	780
ggaggcgaat	acaatatctg	gactcgtcgg	tgggaaacgc	attactttgc	ttacctgtat	840
tctatggcga	taagaagtag	taatatagaa	tcaatacagt	gcttgtgatg	aaaaaagaaa	900
aactttggat	tgcgatcgct	gccggtttgg	cttcgtattg	ggcctttatg	ctcttggccg	960
cagtgtcgct	cagctacgcc	ctctcagcct	tcggtgactg	tgaccggtat	ggccgagcgt	1020
aatttcaaac	cgatctgata	gtttggactg	cttcgtacca	gctccagatg	atggatctga	1080
atcggcctac	aaggctttga	aggaaaaaca	gatattggta	gcagactttt	gaaaaacaag	1140
cagctgcccc	attcgtctta	tatcttctca	agcgtaccat	ctctaagaat	ccactactat	1200
tacgatcctc	ggcaggaaca	aacgtaggac	ctt			1233

(2) INFORMATION FOR SEQ ID NO:1210

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 968 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...968

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1210

tttgtcctca	aattcgacgt	tttatccctt	tggcctgata	aaccagattt	agcctactat	60
ggcccggaag	aagggtgctt	aaagcgggat	tggcgagaca	ggatcatctt	acagcagccc	120
gtgagatgga	taggcaaacg	cttgagcaga	agaagagaaa	gagggtttgc	ccaagacgaa	180
tgccgaggat	tatcagtctg	gatcaagctc	gactttaccg	acttggccat	atccgtattc	240
atcaagagca	gagaaagaca	tcagctaagg	atatgcagcg	gaaagaggct	actacctcag	300
tgatatgttg	gatattgtat	ggancaatat	ccctccgagg	gagaaatagg	agataaggat	360
acggagcaaa	cgagaagcac	tattcgtgaa	acaacagaaa	gaagagacct	atccaggatc	420
tctacctctc	ctgtgcccc	gggataaaga	tttgacggag	tctcattata	tccatttggg	480
cacgctggac	atgaaagcaa	gactacggcg	aggattgcag	cctatccggt	gaagaacggg	540
ttatcgataa	agagcgggtg	cgagaagtat	cgactcgtcc	ctacaaactc	tttcggtcaa	600
taaaaatctg	gctactgcaa	aacagatctt	tatttccatt	ccaaagagga	tcagactgaa	660
ctggagacct	gtctgcaatt	tttcaaccct	tggagaagaa	tggtcagatc	gagatctact	720
atgataagtt	gactagtttg	aaacacctat	tcacctgaa	ataagaaagc	gtattgtcga	780
agccactgta	taatcgcttt	gatcagccaa	cgctatctgg	ccacggatta	catctggatc	840
atgagttgcc	tgtatttcgg	gagtataaca	agaccatagt	gcgatattga	tcaagccttg	900
tacattcgaa	gaccatgagt	tccttcggag	atatttgcct	agaaagctca	aataatcaat	960
cttgaaaag						968

(2) INFORMATION FOR SEQ ID NO:1211

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 696 base pairs

(A) LENGTH: 571 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...571

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1208

ttcccttcgt	tgagtaatag	cggatatgtg	tgccgtgctg	caacagccgt	tcatcatttc	60
gctcgatata	tatgccttgg	gatgcttttg	acatcaagct	atgaagtcga	tgccgagtcc	120
gccggtcaga	tccaccactt	tggtccctct	cttatgaaac	ggcttttgta	cgaactcgtg	180
acagctccgg	aggattctcc	aaagaaagcc	gtgaagggaat	atacaaagaa	ctgataccgg	240
cccacgaggc	agcttggtcc	tcagacgagg	ccaaagtctt	atctgggtag	ccacgcagcc	300
cgatactccg	gaggaatata	attgctcccc	aacagaattc	tgtgggtgat	tggttggcat	360
agagcttaac	ccatcgcgta	atggcgagaa	tcctttttcg	gcgaatagca	tcgtccgtac	420
gtatactgaa	agagggaacc	ctcgaatgga	ttccctcaga	gactgtgtga	ccgcgacagg	480
attcaaacct	taaccggctg	atccgtagtc	agctactcta	ttcagtgagc	tacgcggcac	540
gcaaaagctg	aacattgagg	agaaaaagtg	a			571

(2) INFORMATION FOR SEQ ID NO:1209

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1233 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1233

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1209

gatattcgtg	gtaggtcttt	tctctgcgat	ggcgcaagag	aaaaaggatg	tctctctacg	60
gttcagccag	tgccgaatag	cagcatgggtg	gagcagaccc	tcttctctcc	attgatcacc	120
ccgtcctgcc	cgcttctttt	cagaataccg	tacactgaaa	aggtttagag	acaaacatct	180
ttccgatgct	ttgctcatgg	attgaagcct	catcgctcat	ctttgcaatt	gaatgaggaa	240
ctcaattcgc	ggcagagcgt	cgggatttcg	tttctccctt	cttgcaaaact	cgcccgtgc	300
cgggtgcctt	tcattggcgac	cgaccgatag	gatgcatttt	tatcatcggg	caatatcggt	360
cttggccatg	atttattgac	cgggtgtgcgc	aagacttcgg	atggaatgct	ggtgccgact	420

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...595

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1206

gggactgac	aacgacgatg	atatcctccg	gagcaaagtt	gtctactagg	ttacagactg	60
ggttgtgatg	atcacctgcg	actgcagaga	aacactctga	taagagctgc	gagtttattg	120
atcgccatag	gggttaggcc	aagctcagct	catcaataat	aatgctccga	ggtggctcag	180
gctgaagcaa	aagcgtgcaa	gacagatgaa	gcgaagcgtg	ccgtccgata	gctgataggc	240
ggtgaataga	catcctccgn	ccctttttgc	ttccattcta	gctggatcgt	actccattaa	300
gacgattggg	cataaggtta	aaacctctca	agaatggagc	aacgagcaaa	ccgtacgctc	360
tatgcatag	aagtgcctcg	ggtgcttttg	ttgaggtaat	acaagaaagc	tgcatattg	420
gcaccgtcac	gcctaaggct	agattgtcat	ctacacgaca	tagtgctttc	ataggggatt	480
gattcctgtg	catggaagtg	gtagatcttc	aatgcttgga	tcagttcatt	aacaaaatag	540
cctgtcccca	attgtaatgt	taaaggagac	tcattctacat	cgcgctcaat	tcacg	595

(2) INFORMATION FOR SEQ ID NO:1207

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 532 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...532

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1207

gggacggtag	aggcataata	tcttcttcgt	ttagatgaga	ggagagtaca	cctccaaatc	60
gccttcgggt	tgtcctccct	ccacatcggt	aaaaaccaag	agagggtcaat	ccatggatct	120
cccataacta	tccactcgcc	taaaagcacg	atacgacttc	atacaaagca	tcggcttttt	180
catttggtga	aagcaagccg	ggtagggccc	tgccatacct	gacgcattga	agagtttcgt	240
ccacgaaagt	atgtgacaag	atggcctatg	gaaagggttt	cagcatggac	attagctctc	300
cgaaaacgat	aagctcattg	tcttgcgat	caagtcatca	ttcgttggtc	attaggcgat	360
atgtacaagc	agtctacagc	aaatacagcg	gaacaggctc	cgcaaagcga	gtctttcggt	420
tcgccggact	aagagcaaaa	gataagataa	gcaattgtgc	agtcagcacc	ctcaagaaca	480
tggtcagagg	tagaccgtgg	cgtagcctac	ggccggagca	tcngggttag	tc	532

(2) INFORMATION FOR SEQ ID NO:1208

(i) SEQUENCE CHARACTERISTICS:

aactaccg	cg	attcgcagaa	gaacgtcctc	accggcgcg	gatgcagttc	ttcatcatag	1200
cactcttcc	catgctcgg	accctctcta	atacctatgc	cgacagccac	ggcatcccc		1260
atccgtccaa	agcgtgagct	attcccactc	ttggccacgg	gcagctat	ttccgcctgt		1320
gtagcatcct	gttcatattg	ggactgggtg	cgtcggcttt	ctctgcaagc	cgttcggccc		1380
tgacggctct	gactacttcg	ttcacgctgg	acatcctcca	acacacagcc	accgaagcga		1440
agagcaatcg	gctcgtatac	gccatcgcgt	cacatcggca	tggctgtcgt	catggggctg		1500
gtcatatact	tctttaatag	gtaagcaaca	cgagcgatc	cgatgccgtc	tacgtactgg		1560
ccagttacct	tatggggccga	tattgggact	gtttttcttc	ggcatcgcca	ccaaaaggca		1620
gtacgggaca	gatacgtccc	tctggcagcc	cttggtgctc	cggtgcctgc	tacattctcc		1680
agagccattc	ggagcaatgg	ttcggcggt	ataaatcagt	tacgaactcc	tcattcttcaa		1740
tgccttcttt	accgccatag	gcctgcattg	ttgagccgga	aaaaagaaat	acgatcatga		1800
ttctgattgg	agaagcggtt	ccaccaagac	ggattgggtc	atagccaagg	agggaaaaag		1860
cccggacgat	tccaaaagtc	aggtatcaat	ccatttcagc	aggataggaa	caaatagaca		1920
ctgccctgcg	ttcggaaaagt	cctgccggcc	ataggccaaa	agcctcctct	atccgagctg		1980
natatttcta	ccgggtgccag	ggt					2003

(2) INFORMATION FOR SEQ ID NO:1205

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 556 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...556

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1205

ggtaccctca	aaggcatagg	ggacgatgct	gccgtcatct	cattcgatga	ggcatgaaag	60
cacttgtcac	taccgatatg	ctcctcgaag	gaatccactc	gacctcactt	ataccctctt	120
caaacatttg	ggatacaaaa	gtgcgatgta	aacttctccg	acatatatgc	catgaacggc	180
acaccacggc	agctgaggtt	tccataggtg	tatcggcacg	attctcggta	gaggatatcg	240
aacagtctat	caggggtatcc	tcacggntg	cgatgcctac	ggcgtagacc	tcgtggaggc	300
gatacttcgg	cgtcgctcac	cggattgtgt	ctgagcctga	cctcatcggg	gaggcacgag	360
aagaggaaat	agtgtatcgc	agtggagcca	aacgaccgat	ctgatctgcg	tgagcggaga	420
cctcggcgca	gcctatatgg	gctccagcta	ctggagcggt	agaaagcggt	ctatcaggga	480
gaaaagactt	gcaccggatt	tcgccgggtca	tgagtacata	ctcgaagaca	gctgaaaccg	540
aagcgcgcaa	gacatg					556

(2) INFORMATION FOR SEQ ID NO:1206

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 595 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1203

gcctgtatct	gttcgctgcg	tgctcctttg	agagccttgg	cgttctgagc	tgtgcagctg	60
cttcggcagc	ctttgcctgc	tccatccttag	ccgctacgcg	ggggcttcga	tgacagcgag	120
ggtatcgccg	gcctgcacct	gctgtcctcg	gataccctaa	gttccttgat	gcgcccgggc	180
actttgctgg	acactcgtat	tcggtcactt	ctatctgtcc	ttggataatc	tcctcggccg	240
gtctggcatg	aaaaaaccaa	cgatcgtcac	cactgcgatg	actcccagca	agagagaaac	300
gccgggaata	cgatattacg	ttgtttgttg	tccgtcataa	tgaaatatgt	ttgatcagat	360
gaataacgaa	ataaggaaaa	acggtatcat	tcgaaacgac	ttcttccggg	gagagggtgc	420
ccgaagcctt	gcgcagcatc	attcggtcag	tttcacgtcg	atctgtgcat	cgatctttgc	480
agaccgggcc	acaaccatgc	cgctctgagct	tccagtacgt	tggaggccgt	tattacgcct	540
cgcggaacc	tacattggca	tagcgcagggt	tctcttcggc	tttcttcctg	tcttcgtggc	600
catgacaagt	cgtttgcttg	cctcccgtac	tttcaggcgc	tttgggagag	ctgtagctcg	660
atgctttcgc	gtgctttggc	aagttgtggg	ctgcgatgcg	tgccctgggt	ttggccgctc	720
ttaccttatg	cgtgcctgcc	cccagtgcca	gatagggaact	ttgagcatca	caccacatt	780
ccactacctc	cgaattattc	tcgaaacat	tgaaagagga	cggattagtc	actaatagtt	840
tggcaacga						849

(2) INFORMATION FOR SEQ ID NO:1204

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2003 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2003

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1204

tccgttttta	cagttttttt	cgccccctct	ttccttgctg	aacgggtgtg	ttggctatcc	60
cctagagcgt	atggaaatga	gctatagagc	gtagggagta	atccgtaagg	gataacgagg	120
aattccttag	aacataacga	gataagcgta	gagtataacg	atccggcctc	tacggcgtgg	180
ctcgacaagc	tctacacata	gccccgacaac	ccctatgggtg	tagcccgaag	tctgctgaag	240
atatctcact	agcacgacca	tgcaactcac	ggggaagtct	gttatgctgg	ttgcaagtac	300
ttgacgtatt	tccgtagctt	tgcaagagagt	ttaagaaaat	actttcctaa	cgtctcaatg	360
atttgatatg	agtcctctcg	tagctattct	gacgttatcg	tctatttcgt	cttccttttc	420
ggatatttct	ttgtcacggg	cgcaaagcgg	ataatgccgg	cttctttgtg	ggcaatcgca	480
aatccccgtg	tacatgggtg	cttttgccat	gatcggtccc	ggtatatcgg	gagtaacctc	540
gtatccgtgc	cgggcatggg	ggccggcgac	ggattctcct	acctgcagtg	gtactgggct	600
ttgtggccgg	acaactgatt	attgccttcg	tcctgatcct	ctcttctacc	ggatgaatct	660
gatgtccatt	tacggctact	tgcaaggcgg	ttcggattct	cgtcctacaa	gacgggggca	720
tggtttttct	tcatcccaag	atgctcgggtg	cggctgtccg	gctttttctc	gtatgcctga	780
cgctcaactg	atcgtattcg	aaccgttcgg	atggcctttt	atggccaatg	tgtcctgacg	840
atgctcttcg	tctggctata	tacgttcaag	ggcggagtaa	aacgctgata	tggaccgatt	900
cgttcaagac	cctctgcctc	atcgtctcgg	tgtactctgc	atcgtctata	tttctgccga	960
cttggggcgac	agatggggag	ggcgaccgac	cttatcggcg	ggagcgacta	ctcccgtatg	1020
tttttcttca	tgacgtgaac	gacaaacgct	atttcttcaa	gcagtttctg	gcaggcggtt	1080
caccgtaata	gctatgacgg	ggttggatca	ggacatgatg	caagcgcatt	gagctgcaag	1140

(2) INFORMATION FOR SEQ ID NO:1202

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 996 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...996

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1202

agtctgacgt	ggctaccatt	acaccacagc	gcataccgca	ctgctcgacg	gcttagcgag	60
cacaatatac	acgaatcttt	ggattatggt	ccagtatggt	ttattagatt	ctctaattctg	120
agcaattcaa	aaggaaaaaa	gccgcggaca	gatgctttcc	ctttttattc	ttctccaaaa	180
tagtcactat	cgagcttttc	aactcataag	tctgttggtg	agtgcattcc	aggttgtaat	240
cgatcttaat	tgagttagtt	gttccccatc	aatcaatata	attttagtct	cattctgggt	300
gtataagtta	atgcttcctt	tgtaaaatth	gaagttgtha	taagatccct	tttttggcac	360
cttgtccagc	gagtgctcca	acaaactttt	gagctcaggt	cttcctacca	cattcccagg	420
cctccagcgc	ttggcttgga	ttaaataata	tcaagtccca	gtttatcttc	ttttattggt	480
ccgtcaattc	ctcgtctcca	cttttgctta	atgctttacc	ggcatccttg	atagaacctc	540
atatcccat	ttgactaata	attcgacaac	aagcctctca	aaaaaagcgg	tgaaagggtca	600
atgactttat	taagtaattc	ggaagccaat	gattttcgat	tccttgatat	gctttgtcaa	660
ggacctcttc	aggtgtttgt	tcgtgttttt	ttctgttatg	gattcttctt	ctgtttcgcc	720
gtcatttcga	taaccttctg	aaattctata	aacgccggaa	accgtcttag	gtattttgtg	780
tctatttttg	gggattcttc	gaaagtatct	ctctgccaa	gtcagaaatt	atagaatcgc	840
tcgttttagc	gaatcaagaa	ggccagcctt	ctttaggtat	gtcttgccca	gccaacgcga	900
ttgtcaaaaa	cagctttgga	gccacttgcc	agagttcctg	cgttcttcgt	ccgtgacctc	960
aaatcggtcg	ccaatgttcg	taatatctct	ggattt			996

(2) INFORMATION FOR SEQ ID NO:1203

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 849 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...849

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...628

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1200

cgcacggcaa	tctgtttccg	gcacgaagca	aagatgctcc	ctccgataat	atcagagaga	60
gcattttcgg	aacgacgttt	ctgctcataa	caaccggcca	tgcatagtcc	aacgatgcca	120
aaagctgcgc	cagccgatcc	acaccttggtg	cagaggcttg	tccagcatag	gcttcacaaa	180
catattcagc	tcggcagcag	ggtaatcttc	agtctggtat	catcgggtgc	agcctctttg	240
agctgatcca	cacgttgaaa	ggcatgggag	agcgttctgc	ctcgaatttg	atcagtcgtc	300
ctgacgacgc	tctactattc	gcaaagtaat	ctgccccacc	ggatcactga	tagcgtacag	360
ctatcactgt	ctatccccgt	cagcttaatc	ttccctcggg	cagtttatcc	tccatcccct	420
tgagattgga	gagggtccgac	atttggaata	gacagccgag	agagggtgctg	ctatactttt	480
tatttcactt	tgtattctgt	catacttttag	ggtctatata	gtttgtgtac	gaagtgcgtg	540
tccgaggaga	aatcagatac	cccacgtctc	gggactcttg	cgccattccg	aagcagctcc	600
acattctcgg	cagaaatata	gcccgtcc				628

(2) INFORMATION FOR SEQ ID NO:1201

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 545 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...545

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1201

gcgagtttac	ggaagtaggt	gctgatatcg	aagttcaggt	aatcgagatg	acaaggaaaa	60
ccgtcgtctc	agcttgggtc	acaaacagtt	ggaagagatc	cttgggatgt	attcgagacg	120
gtattcactg	taggatctat	ccacgaagaa	cggtaatcga	agtgatggac	aagggtgctg	180
tcgtttctct	gccttaggtg	tggaaagttt	tgccactccg	aagcacatgg	tgaagggaaga	240
tggctacagg	ctgtactcga	agagaagtta	cctttcaagg	ttattgagtt	caataggatg	300
ccaagcgaat	cattgtatct	catagccgtg	tattcgaaga	tgacagaaaa	tggtcagcg	360
tgaagccaat	gcagagcgta	aggctgaagc	caagcggctc	agaaagaagc	tgctgccgaa	420
gctgccaatc	ctgcacaggc	ttagagaaaag	ccactctcgg	agacctcggc	gagctggccg	480
ctttgaagaa	gcttcagaaa	ctaaaactac	tacggatcat	acgcgctttg	gcgtatgatc	540
actta						545

gagctttttg	gggacgatta	ctatttggag	attcagcgac	acgagacgat	aatccactcg	600
gcaatcagga	tgttttcccc	cagcaacagc	gcgtaaacgc	gtcatactgg	agcttggcaa	660
gaagttgggc	gtcaaagtta	ttgcgagaac	gatgtccatt	tctgcaatga	agaagatgct	720
gaggcgcacg	accgttgatc	tgtctgagca	cagggaagga	tctggacgat	ccgaacagga	780
tgcgtatacc	aagcaggaat	ggatgaagac	tacggcagag	atgagcgcca	tatcgaggat	840
ctacctgaga	ctctttccaa	cacattagaa	atacttgaca	agtagagtta	tacagcatcg	900
acaacaaagc	cctgatgccg	gactttccta	tccccccgaa	tataaagacg	atgatgacta	960
cctgcgtttc	cttacctacg	agggggccagg	cgcaagtatg	gagaggatct	ttccgatgag	1020
ataaaagagg	tatcgacttt	gaactggaaa	ccatcaaagg	aatgggggttc	cccggctatt	1080
ccttattgta	caggatttca	ttgcagccgc	acgaagtatg	ggcgtcttgt	cggacccggc	1140
cgaggatcgg	cagccgggttc	ggcggtagct	tactgttggg	gat		1183

(2) INFORMATION FOR SEQ ID NO:1199

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 898 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...898

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1199

ccagaggaaa	gcaagggttaa	agatgagcgc	aaaagcttat	gccaatatca	tcaaagggtga	60
caaagatacc	aagatgcata	tcttcgaaca	ggtaaaattg	agcttcgctc	tgctgatgct	120
ttgaatatca	actattcggc	tcgtaagaca	ccaaatagta	tccttgtaga	agaataaata	180
cccttataaa	aggctgggat	gaggaaactc	acgacacagc	ctttttcatt	acttcactgt	240
cataagtttc	cttagcagtt	gtaagaatgt	tttttcagcc	tctgactaat	agaaaataca	300
cggaaatggg	ttttttgtgc	aaaaatcagc	ccgaaaattt	gtttgtaacg	taaaagcgga	360
taactttggc	acagaaaaag	gtttatgaca	gaatccatcc	gccccctcct	ctcatagata	420
cctctactcg	cgtttgctca	gggcgggttg	tgctgcaggt	actattatct	cacaacgggt	480
tagccatgtg	gcaattcgca	tgctgctaac	atcggcgtat	tcgtacaaga	ggtcttgacg	540
aggcaatagg	cttaggagtg	aagccttcca	tagtagctct	aagttccgtc	ccggatcata	600
taccggacta	cgcacgcgat	cgtccattgc	caaagggtat	gctttggact	cggaataaccg	660
cttgtgtctg	tccctacttt	ggagttattg	ctgaggctgc	acgaccactg	tctcaacctg	720
attggttgat	ttgcctatga	tcgacgccag	acgtatggaa	gtttatacag	cacttttcga	780
ttccaaggta	aagcccttac	tgatacactg	ccttttggtga	tagacaatga	ttcttttccg	840
aagaactcaa	aagcgcaata	tcttattcgt	tggtgatggt	gcgaaaagtg	tcgcccct	898

(2) INFORMATION FOR SEQ ID NO:1200

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 628 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...713

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1197

cagatcacga	agaccagcgg	gcactccctt	ttgggcatag	gcgatttata	tcgccaagca	60
tcgtaatggg	cctgtggatg	atgtacgttt	gcgctccgag	cgagttgcca	agttcctacc	120
tcttgaggcc	gagagcatgg	tcaaacgcat	tcccgtatcg	gaggctcacc	cgtgaaaatg	180
gggtgctggca	acggatgttc	gcccctcccc	tacctccacc	gaggacaatc	ccctcctttc	240
aggccctatt	cttccggcac	atccgaggcc	gatttcctcg	ccgaagcatc	gggatcgaca	300
accctttctg	atattatcag	gaaacgatat	tgcataattta	tgaccaatat	acatggctca	360
ggctcaatta	gagcctaata	tattagccat	ccttaaaaaa	cccttatggg	acaactagat	420
agggttcgga	gcaaagacga	accacgggat	atagacagat	cgaactgagg	ctaaacacgt	480
gccaaaaaag	tttcaacaac	gaagaggagt	ttggaatgat	tccaaataag	caagtgaaag	540
aagtggacat	tgaagtcgaa	aagttgagga	tacggacttt	ttcaagtcaa	atatgatttt	600
tgggaagagaa	gataacgatc	tatatacaaa	cagtttagat	aaatatatag	atcgttttcg	660
ttttgtatat	aaatcgtttt	caattttata	tagatcgaaa	gtcattttcta	gag	713

(2) INFORMATION FOR SEQ ID NO:1198

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1183 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1183

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1198

gctctgaccg	atcatggagc	catgttcggc	atcaaggagt	tttacaactt	gtggagaaga	60
agaacagcgg	gcacaatgcg	acattgaagg	actgtagggc	gaactggatc	aactgaacga	120
ctcgaagagt	gccgacatgc	tgaccgagaa	gagcgcaacc	gcattgtcaa	gttgacgcag	180
aagatagagg	agacaaaaaa	ctcctcttca	aacctatcct	tgggtgtgag	gcatattgtg	240
ctcgagtacg	cgattcgaca	aggataacca	gataccggat	ccgtatcatc	ccagcgctcc	300
atcgatgcca	gcggttgcca	cttgatcctg	ctggcaaaaa	actgcgaggg	tacaagaatc	360
tgatcaaaat	ggtcagctat	tcatggacag	aagacagtac	taccgtccgc	gtatcgacaa	420
ggagcttttg	cagaagtatc	agaaggatc	attgtctctt	cggcctgcct	gggaggagag	480
ataccacagc	tatcatggca	ggagagattg	ccaggctgag	gaggccatcc	tctggttcaa	540

cgtattgcc	gtgcccgggc	tatggctttc	gatatgcgata	tgagggggaa	agacgggtgc	300
tttcgtccca	aacgggtccga	tattttttgtg	ccgaactttt	cttctgaaag	gagtgatgat	360
acctctcacg	agtaactgtc	tcaggagaaa	agcaagggtga	tgatcctcct	gtcggtcaga	420
aaagaattga	ggtagcgcgc	ccgtccttct	cctcagggtct	gtccggcgag	ccgatattca	480
gcagcaatac	acctctctcg	cacccttatt	gtcatcggtt	cttctacgat	ctgccataat	540
tcaggacgaa	gataggtaag	attccgttctg	tgtctcttat	ttttcccgtc	ccattctcta	600
aatgaatgag	agcattaacg	gagtaaggaa	gccgtattgc	cgaagcccgg	atgtgcaacg	660
aataaaggga	tcgactctgc	ggcaaaggat	tcgacgaaaa	ggccgtgcga	cagtttctact	720
ctctgcaagg	gatatcggtt	actttcggca	aaagagggaa	tgtccgacag	gaaatctgca	780
ttgcggccga	aaaaagtcgc	tccaagccgg	aggaagcatt	ttccgcgcgg	attgtcgtcc	840
tccaagttgg	agcagtgaat	ttcgtgtccg	atttgcaggt	ttcacgccga	acaatgacat	900
tttcccgaac	gaaaagccgt	ggagaccccc	gattttggag	aggttggaag	ggtcggctgt	960
gggtattcct	gtgatttttt	ctcccgatgg	tatggtttca	ctcccgaaga	cacgctgaaa	1020
atcatcggcc	aaaaaccgat	ctg				1043

(2) INFORMATION FOR SEQ ID NO:1196

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 784 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...784

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1196

gcgtacgacc	ctttcgatgg	ggcataaaca	acgaaagaaa	acgagacaaa	acaaaaaacg	60
aatatagaat	tatgggaaaa	atcatttgaa	ttgacttagc	acaacgaact	cttgtgtctc	120
tgtattggaa	ggtaacgaac	ctatcgtatt	acaaacagtg	agggcaagcg	cacaacgccc	180
tcggtagtgg	cttttgggat	ggtggcgagc	gtaagggtgg	cgatccggcc	aagcgtcagg	240
ccatcccaat	cgcaccaaga	cgatatactc	tatcaaacgc	ttcatgggag	aaactacgat	300
caggttttcca	cgaagtgga	gagagtgcga	ttcaaggtag	tactggggac	aataatactc	360
cgcgcgtaga	tatagacggt	cgtctctata	cgcgcaggaa	atttcggcca	tgatccttca	420
gaagatgaag	aagacggccg	agactacctc	ggtcagggaag	taacggaggc	cgtgatcact	480
gtgcccgcac	cttcaacgac	gctcaacgtc	aggcaacgaa	agaagcagga	gagatcgccg	540
cctgaaagtt	cgccgtattg	tgaacgagcc	tacggcagct	tctctggcta	cggctctggac	600
aagtccaata	aggatatgaa	gatcgctgtc	ttcgactggg	tggcggtacc	ttcgatatct	660
ctatcttgga	attgggcgac	ggcgtttcga	agtgaatcgc	accaacgggtg	atacgcacct	720
cggaggagac	gacttgacca	cgtgatcatt	gctggctggc	agaagagtca	agtctcaaga	780
aggt						784

(2) INFORMATION FOR SEQ ID NO:1197

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 713 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(2) INFORMATION FOR SEQ ID NO:1194

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 468 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...468

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1194

gaggcaggcg	aagccatgga	tctgtatatt	accgtcgtaa	cgagagatct	ctgctggtcg	60
gagacttcct	ctctttcctt	ccggaatggc	aagcgtacac	ttctttcggg	aaaatgatct	120
cacatacgac	tcctaccgct	tgtacaaccc	acgacacaga	aatacgagtc	cgggctaagg	180
gtagaggatg	cggcactacg	gtagacttct	tttctcggca	agcaatccgt	tggggtgaaa	240
tcctcctgta	cgctttctgt	ctccggccag	tatcaaggta	gatcaaatac	tgtcgccgaa	300
ataccctact	cgcgtctcat	gaatagactc	tcacggcgtc	tgttgagcta	tatacgcaat	360
acctgagcag	gggagagaca	tctgtggagc	gaatattttc	cccgaccatg	atgggctgat	420
ttactcccag	ataagtatgc	ccgcaaggcg	actatcaagg	aaaacaga		468

(2) INFORMATION FOR SEQ ID NO:1195

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1043 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1043

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1195

tgttatcggc	aaggacacga	atataggctt	cgtgtgcgta	gaaaggctga	cgacgcggaa	60
ggaaagattc	ggacaaaggc	ggcggatttc	ggccttgcat	gctccacggc	cgtctcgtag	120
ctgctcatgg	cgtagtgtgg	gaagagcgga	ggacgacgag	gcttcggccg	tgtggcagct	180
ccttcagcac	atcggcacag	ccggcttgcc	gtagcgcgatg	gctacatgga	cttctctgcc	240

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...640

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1192

ggcgatttct	tcttgcactt	cgggacgaat	gagaggaatg	ggaattttcc	aaactcctgc	60
ttaccaatac	ctgtaaggat	tgttcccga	caagcttttt	gagtagttgc	tgtataggta	120
gggacttgaa	aagcgtagc	aatgtcttgg	attgatttga	tttgagcgca	caacatagaa	180
gccagtcgag	cagagcattg	gtcataatcg	tccgttatca	atgcacaact	actcaaagac	240
ccctcataga	tgaacaatc	acatcgctt	gggttacgat	acgccttgca	cgtggggcag	300
gtcttcacca	ttttcgtaca	aacagcctgt	aatgtcgccc	gactgccaat	attagccaac	360
tcaatgtagc	gatacttcat	atcacattct	gggtatagtt	gctgtcttta	atgggtgcaga	420
cctcaccaag	aggagcgaca	cgccagtgt	tgccgatact	gcattgatgt	aatcctcata	480
cttaggcaaa	aatactctgc	atcaatgcgt	ccactttcaa	ggaagctctc	tttgagtgtt	540
ttacgttgta	agcatctata	ttggctacaa	agtcttgcat	ccctaagccg	ccaatagata	600
gctctcagca	gaggagtaga	gggatattcc	ctctgtcact			640

(2) INFORMATION FOR SEQ ID NO:1193

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 466 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...466

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1193

ggtataaaca	accttaccgt	tcatgtcgaa	cagagatacc	tgacgaccat	agctccggct	60
acatagataa	cgccattctg	aacataagca	ttagcctttc	gttggtaaga	acagcctcaa	120
caccttcacc	cttcttcaaa	tgaacaagac	atagatgttg	taatttaagg	taggaactgc	180
ttgatgaaga	gattcgacgg	agggaagta	gcaccaccat	cttctgatat	agaaacaaaa	240
tctcctaacc	atcaacggca	gggccctgat	cncatccgat	aggatgtcca	cctgggtatt	300
agcaatataa	ccaactatgt	aattcttgcc	ggcttcaatc	ttgcaactag	cttgagagca	360
agattgttga	tagtctgcat	ttcgggatca	cttcttctga	ttgggcaaaa	atggtcatat	420
catcagccca	gactgcagat	ggtacttgca	cgctttatat	ccaggg		466

aggtggatac	ccccgaagcg	aaaagagcat	ggaagacgag	gaaagaagta	gtctccagat	180
ccagatcgag	tgctccgcaa	tgataagtgg	gggcgtaatg	atagccacaa	agatggcaag	240
gagggtttgga	aagcagcaaa	gacagcatct	ttgaaagaag	gcttgtcttc	gatttgtaga	300
tcagatctac	ctgtggggta	gcttcattcg	gtgcgatggc	catataaagt	cagtgttagt	360
cggataatcc	ttattcctcg	ttgggagcaa	gaaggcacaa	aaataataat	gaaaatgcac	420
ctgactacgc	tattgcagga	aaattttcca	cggtagcaca	gagctacatc	attggggggg	480
taccccaaaa	gacaacaaac	ttaaaggccg	aagagatagt	tgagcttgac	gccgagagta	540
ggttcgagga	tctgccgtga	gggtcttgct	gccggttggt	gaggagatat	ggaagccata	600
gtatagccgt	ccctccaatt	cgaaggctcc	cagtctgcgg	catcgaatcc	gaatccggga	660
cctccgccaa	ccccattcg	aagcgtcgtg	cagaccttgg	gcatagcgtc	gctgctgcag	720
ttcgggtgaag	tccgaccttg	cttgacgggt	ttctctgcaa	tgatgaatcc	gaaccgaggc	780
cccaattgag	aaaagcatag	agacctcttt	gccggatttt	aatgtgtgtg	agcgagggtat	840
cgtcacacaa	tcgaatgtgc	gacgataggc	attgtccggc	tttcgtcaaa	tttctcctcc	900
catcctaagc	gaatgtagct	cgcttcggct	taaggcccac	tttcaagggt	cccgtactct	960
cctcattttac	ccgtacaatg	gaccgctcga	aggagccaac	aagagctttt	gggccacagc	1020
gggattgaaa	gcaccttatt	ggccgaaacg	cctccggcta	ccccgacctg	tacacgtacg	1080
actgcttgga	cgtttgggct	gtggccgagt	ttatcagaca	taggaaacaa	aaaggctgat	1140
acctattcta	cgaatcatgt	tcctctttgg	atgagcggta	tggacaggga	aagtatggag	1200
cagtgcatag	caggagttat	cgagaacggg	cacacgatcc	accctccgt	cggagcgtag	1260
cgtgacgagg	aagaattcag	attgacaaaa	ccactatcgc	cccttatctc	gcggaattgg	1320
aagccgtctg	caaccccgtg	gaaggaagca	tggagagttg	ttcctgag		1368

(2) INFORMATION FOR SEQ ID NO:1191

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 514 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...514

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1191

ggaaattccc	taatgattcc	aaatacaacg	caatcctaca	gattggaggg	gctggcctga	60
ggaagcactt	tgcgagctga	gtggagatag	ctggtttact	cctcgggaaa	actcatgctt	120
tcttctttca	cagatctgtc	attgctgatt	ttatgaaaag	catgtgctat	agttggaaga	180
cgataaaacc	gatggtattg	naaccccatg	ctgggagcct	ctacctccta	tgatgcccg	240
aattgagcat	accatgccta	tacagttttg	ggatatacag	tttccaatgg	agccattacc	300
tgattatccg	caatccatgg	ggagtgactg	agccaacagg	agaggagtgc	taagcacaag	360
agattggggt	atccacttcg	ataatatgaa	gtgttcaatc	tatccaaaga	cgatggcatt	420
ttcgcactcc	gacttgataa	atgagagaga	acttctggta	catcgcatat	atgtattgat	480
atcagattat	ttatacggtt	tgagaacgat	ggag			514

(2) INFORMATION FOR SEQ ID NO:1192

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 640 base pairs
- (B) TYPE: nucleic acid

(2) INFORMATION FOR SEQ ID NO:1189

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 702 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...702

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1189

```
agaaacccta actttcctat ttccgcttag atcgaactga cgtaaagaaa gaccaatggt      60
catatcgcaa aaatgccgta caatgggtctc taataagccc tgggcgatgt tgtacttctt      120
ctcgatggca tacttgctcc gaggctgcga ggtattcttc cacaatgtga agacgcttgg      180
aatcagtc aaatgttgaca tgattactgc tttttttgac ctctccgatt ccgtacacgt      240
cgttctaaaa atggcgggttt agcgttttga aaaacgtggc tcgggaattt tttcttttgg      300
ttcgggaagt aaaaatttta cgcgccacaa cggaaaaatt ctctcgtga atctcagaaa      360
actcgaaccg cattccggcc aattccggaa ccaattcgtg aggaatctgc ttataggcat      420
ccttttctgc gcatcgtagt gaagtaatct tggcgaaacg ccttcgacct ctcccgtacc      480
ttacttccaa tctaagtgat tgtgtcttat gtggaattca tctcgtttcc ctctgtaatc      540
agcattcgat gcgaggatac gataggattt ttttattttt gagaccaaaa aaaagaatac      600
cccctcgact atagaaaaca caaggcgccg gaaaagggaa gttgtccgat cttcaccttt      660
ctgtatccga tagagggaga ttagagcctg actgtaaaaa ag                          702
```

(2) INFORMATION FOR SEQ ID NO:1190

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1368 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1368

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1190

```
accgaatata agtgcagccg ccggccaggc cgcgctgata atcgggccgt aaaagaaaaa      60
cttgtgccct gcacacatag cagcccggca cccaaaggcc tactcttcta cattggataa      120
```


(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...694

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1187

```
ccaattccgc aagattttga cagagaaggt agaagacgtt tcttctcacc tttttctccc      60
cctgtttttt gtcagttccg gttttgcaaa cgaagttggg ttgtggacag tgcctccctg      120
tggctactga caggtgcttt caccctgttg ccattatcgg caaattcggc ggtacgtatg      180
tggctgcaag gttctgggag agaggaagaa agcatcgctt tacttagggg cgttcatgaa      240
tacgtggcc  tgatggagct tgctgtgctg gccatcggac gcgagcttgg catctccctc      300
cggttatatt cacaattctg gtgatgatga ccctgatcac cacttcatga cgactccctc      360
gctccgactc atagatcttt tcttcaaacg cggaccgagc ttgagaatgc agcacttcag      420
aaagagaata gcggggccgt atgctttcgt tcggaagggc ttcgagtggg gcacatttgc      480
ttcatgccac gacctcttga tgcacggggg cgatgagaaa ccctctgtta cggctcttct      540
atcactgtcg ggagcgacac gaatctgact tcttcggaag tatatgaaaa agagcttttg      600
ctcctatccg agaagaaaag gatcgagac  gactcccatc agaacactgc atcaccacac      660
gttcgagcat ccggaggcct gaggtatacc tacg                                     694
```

(2) INFORMATION FOR SEQ ID NO:1188

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 857 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...857

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1188

```
ggactcaatg tcttcccttt ttcagcaggc aatagcgtct cgaattcttg aacggcatca      60
accccgatct tctgatttat atgcntcacg gacgtttggg caggccattc cactgaaagc      120
ggaaggcatg gcttgcgcaa gcaaaatttt cctattctgg cacttcttta caatcggcaa      180
ttcttcgaga gacttggttg aagacaagca aggtatggta ggcgggcttc ctggcacaaa      240
gcgtacgact cccgagtttg acggagccat ggttcccttt gcattgattg ctctgaaaaa      300
gatgccaaga cagggttaca actcttcaga accatccccg gacactggag gtatttacca      360
gtctggtgaa caatacatc accctaaaga acaacctaac aaggagaagc gcgttgccat      420
ctactatttc aaaggaccgg gcaaaacagc ctcgtagcac aagggaataga gaccctgcct      480
tctatttata tgtattgcgc aagatgcaga gcgaaggcta tgatctcacc ggattacccc      540
cgatgaagca gctttcgaaa agatcatcat gacgcaagga gctattttta tagctatgcc      600
gaaggcaatc tggcacgctt taccgaaagc ggctatctgc attcgtaccc acaagtgatt      660
tgaagcagtg ttgcaagaa gtccttcacc caatcaaatt caacatttgc aagaacgcta      720
tggagaagct cccgggaata ctattcgatg gagcaaaaag gagtaggcgg catcgggtga      780
accctgtgca agttcggcaa tgctgttctt ttgcctcagc ccgtacaagg tggagggggcc      840
aacgactttc aaggccg                                     857
```

cgcacgttgt	agtcggtctt	cctataaccg	aatgagagcg	atgaccaatg	atattttcca	60
taatccta	tagaataaga	ttgtttatga	ttaagatgta	attgcaa	tgtttcattc	120
agcaactctg	caaaggtagc	aaataataat	ctgttaattg	cttttggttc	gataaatgaa	180
agcaggtacg	caa	atgctat	ttcggacgat	accaatccac	taacattcgt	240
ttatgcatc	cgatgcttcc	agcctaaggc	atggagcttg	cttacatccg	tcagttgcgc	300
atcgtgccgt	ccggtttgga	ggagtcgaac	tcgataaggc	cctgtaaccg	atgggtcttg	360
ctatcagcga	agccaaatcg	cgaatggaga	ttcctccccg	gtgccaatgt	tgatatggca	420
gttgccggtc	ttcttgagtc	cgtggggata	catatcggcg	aagtcgcaag	tgctccatga	480
ggaatacgca	gcattcggcc	atctct				506

(2) INFORMATION FOR SEQ ID NO:1186

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 602 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...602

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1186

gtttctgctt	cttcatgtct	aaaaaaacac	ttcgttctcc	tccgacaata	agttttttcc	60
ttgaaaagcc	tccgaaagag	cagagaatcc	ataaagtc	catggaaata	catcgtgtat	120
tcctgacttt	tttcttgc	tttttggttg	caagttttcg	aatttggtca	ttctcgattt	180
gttttatttt	ttcaggatct	tcatttcaaa	agaataagaa	accgtcacag	ctttagactg	240
cgagaacttg	gcaaagcgct	catcattaaa	aatattgcaa	aaaataatct	ggcctaacac	300
aactttttac	taatcaaagc	gagagtattg	cctcccgctt	tgatatatta	taggacaagt	360
tatccaaaag	cctatagtca	aaaaacagac	ttgttctttt	cgataataat	aataactact	420
gtaccatcat	catagatgat	gtccaaacct	caacctcttg	tgcaactgag	cttgagcctc	480
tgtgcaaagt	ttcaacagct	acttcttgtg	gaagtgccac	cgtttcagtt	gcacctgctt	540
cggggcaaag	cacatagcag	ctaattgctac	ggctaacgat	gcgaaaaatt	cttcatagtc	600
tt						602

(2) INFORMATION FOR SEQ ID NO:1187

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 694 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

atgaaggctt	taccctgaaa	atgctcaaga	aaatccggaa	ggatgtaatg	aagccaaaga	180
cttcttccgt	cgcacgagtt	aggattcaaa	gacttgatcg	tcacagagca	acctctttcg	240
aacgagtact	caaggaagta	ccggatgaat	tgaaagaatt	catattgaaa	gaatcgatgg	300
ccgaagcgta	ttagaaaatca	aaacttctca	ttgggtatat	gacaagacgg	taatcaggtc	360
gaggaaaaaa	ttttcgccaa	ggatgaaatg	gatcggaagg	aaccaagaaa	gtcatagagc	420
tttcaggccc	tttattcgac	aattgaaaga	aggttctgtt	ttgctgatag	acgaattaga	480
tgccaaactc	acccctttt	gaccagaagt	attctgaagt	tgtttatgtc	tccggagaca	540
atcccaatgg	agcacagttg	atctttaata	ctcacgacac	aaatctgcga	agggcgatta	600
tttacgccgt	gatcaaactc	ggttcacgga	aaaagacgga	cagaatcctc	cgatctttat	660
tcattgatag	agtttcgaga	tcagaggag	taaaagttcg	taaagatcgg	agttttcaaa	720
acgactatat	taacgacgtt	atggagctat	cccgttcatt	ttttcaagt	tagagccatg	780
ggacaccacc	aaaaagagaa	atagaacgac	taaaacgtga	aaagcgagaa	gcaaagccgc	840
aagaaaacgc	aaagagaata	cccgggacat	aatagttcga	ttctgatcgt	ttgtgaagga	900
caaaagacgg	aacccaacta	ttttaaggct	tgattgacaa	ccactactcg	gaagttcgtg	960
aggcagagat	taggggacaa	gttgttctac	ttgtgcatta	gtcgaacgag	ccaaagagat	1020
tcgggataac	tcgaaaaaga	gcgtgaatta	ggctttgatc	ggatttgggt	tgtctttgta	1080
aagacgattt	tgatgatttt	aatcaagcta	tcgaccttgc	aaagagcatg	gtttcggatg	1140
cgcttgga	aacgaagctt	ttgaattgtg	gttcctctcc	atttccaata	tctggatgta	1200
cctatcagcc	gtgatgctta	catttcaaac	ttgaaaactt	gatacaaaag	cgacttaaat	1260
ataattcttt	ccgaacaata	agaatgatcc	ctccttttac	aacatattga	aagaccatgg	1320
agaggaattt	tagcaaaagc	atatgccgaa	aaacttcgct	tgaaacacaa	ggtaaagatt	1380
atgctaata	caaccctgt	acaagggtcg	atctattggg	taggaattgg	aaaatcccct	1440
gtccgtatta	aagaacaaat	aaagaggggtg	agatcactca	gggcaatcgc	acttgaactc	1500
ctaattgtac	tatagcttct	gattgctaca	ttcaattatc	aaaacaagca	cgaattcata	1560
tctcagggtt	caaattatag	aggggaagaga	ctgaaaattt	ccaaaagaga	tcgctccaat	1620
ctccctgacg	gactgcaatt	tatttgtact	ttttagctta	acgttgtttg	ttgcaactat	1680
ttcaaacaga	tgagagcaaa	catttggcag	atacttccgt	ttcggttctc	tttttcttcg	1740
ggacagcgat	cggacaggct	cagatcgaaa	ccgtacatac	gaggcttatg	tgaaacagta	1800
cgccgacgaa	gcttccgaca	gatgagccgc	tacaatatac	cggcaagcat	caccatagca	1860
cagctttggg	ggagacagga	gccggagcca	gtacactggc	cagcgtagac	acaatcactt	1920
cgggatcaaa	tgccacaaat	cgtggacggg	caagcgcacc	atcgtaccga	cgatgcgccg	1980
aacgaatgct	tccgcagcta	ttcggccgcc	gcgaatcgta	tgaagatcat	tcccgatthc	2040
tgctccaacc	acgctatctc	ccctgttcaa	actcgacaga	gaagactatc	ggggctgggc	2100
tacgggggtgc	aacgctgtgg	ctatgccacc	aatcggggct	atgccaatct	gctgataaga	2160
tggtggagct	gtatgagcta	tatgctttgg	atcgcgagaa	gtaccctcat	ggttccacaa	2220
gtcttacc	gggtccaaca	aaaaatccca	tcaacgacca	agcagaagca	gagcggactc	2280
aagcacgaag	cttacttcaa	gctccggact	ggctctacat	cataagccaa	g	2331

(2) INFORMATION FOR SEQ ID NO:1185

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 506 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...506

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1185

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 755 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...755
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1183

acgcctgaaa tgaagcagct catctcaggc atcaaagaag taagcaaacc tttcggggaga	60
ttgccccaaac acaccgtccg ctctttgggg gagaaattac cttacgggac gaggaggtct	120
gcgaacggct tttcgtcagt cctcgtactt gcaggactat cggaacaagg gcattatccc	180
ctacatccaa atcgcgggaa aatcctttat cgacactccg acatcaacct actactgcaa	240
gagaatatgt caggcagaga actctatagc ctgttcaacc atagctttgg ctctgcaagt	300
aaagctttgg attctctgcg gaaagcaaaa ctcttggaca ccaatccgag agtttttgct	360
gtatataaac agggagcata gggattatca ctgggatatt tccgagggct tccaatgctg	420
aataatagaa cctccagcat ccgctctgct tgcattcgca caattggcga attgaggaca	480
agagtaagat atcgggtaaa agttcttttc ccttcatact aagatgcaat attgctccta	540
ggtaataatg tcagcatctt cctccatctt ataagcaata cctacactcc atcttttgag	600
agaagaatgg tatttttacg aggtcgtgga gctgtggata agtagagcta tctaaacaaa	660
tacttgaagt ctctatacca aatttattaa ggtcggctac tcttacaaaa ggtatccatt	720
ttcttgataa gcatecttac ccggctctat gggat	755

(2) INFORMATION FOR SEQ ID NO:1184

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2331 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...2331
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1184

gcagatgcta cgcccggaaat agacttttgt gtccttgtgt gcgcagctat ggaaagaatc	60
atcttctaata tttggactgg ttcagcactg catcttattc ggtgtagaaa aaccagggtt	120

aacaaaatttc	gtttgtgggc	ggattgtgta	ggcattgaca	tcctgaggat	tcatcagcca	180
acgctcgcga	tctacatctt	gccgagggtca	gccatattgt	cgatcatgcat	ccattttgctg	240
gcgcgttgat	atcggcataa	tagctgtctc	ccttgatttc	catcttgga	tagttttcca	300
cttgtcggga	taaccgatc	ttgatgatga	aggaattgag	ttttcctgag	ctttcatctt	360
cgtgggagtc	gccatccat	gtaagcatgt	tgtacgctct	ccgagggccg	tttgacgggt	420
cttgacgagt	ttgagcatgc	gtcttttgct	tcgggtgggg	aaagtattgc	tttacataaa	480
cttcgcccag	gcttcgcccc	gaaagctgct	taccatacct	acggaacggt	tccagcgaga	540
tgctttcggg	ggttc					555

(2) INFORMATION FOR SEQ ID NO:1496

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 529 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...529
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1496

cgagcctctg	cctgcctcta	ttctggcttt	gccccacaaa	cgcgggcgtga	agacaaaagta	60
attaccttcc	tgggacgaat	cacgatgcag	aaaggcccga	atacttcgtc	gaagcagcgg	120
ccaaagtact	cgaacgcaca	tccgacgacg	cttcgtaatg	gccggaaacg	gcgacatgat	180
ggacgccatg	atcaggtggc	tgccccgacac	aagatagccg	accgcttcca	cttcacagga	240
tttataaagg	cgaacagggtg	tacgagggtat	ttaaggcaag	cgatgtctat	gtgagccatc	300
cgtatccgag	ccattcggca	tctctccact	cgaagccatg	caagcggagt	ccccctccatt	360
atttccaaac	agagcggatg	tgccgagatt	ctgattacgc	catcaaagtg	gactattggg	420
acatcgatgc	catggcagac	gcatgcatgc	gcttatagct	tatccggaac	tgcatacttt	480
cttcggggac	agggtctccg	agaggtgaac	aacatcaagt	gggagactg		529

(2) INFORMATION FOR SEQ ID NO:1497

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 608 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...608

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1497

tctanaggat	ccccgggcatc	attccgcaag	gggatgggca	aacactatcc	tgagtgtc	60
gaccaatgga	aagtactatc	agcagtata	gtgcacatta	tggatccatg	gtttgggggc	120
aagcggcccg	gatatgttca	gcttcaggca	ttctattcca	agactacggc	gattgactcc	180
aagttctaca	atagcatgcc	ggcaactact	ataatgccta	ctataatagc	tactacaaca	240
actatatagt	tattacaacg	gtatgtcgaa	ctataccggc	gacctctata	ctcagccagc	300
gatcccgat	cgttcgcttc	agatgttagg	tacttcgatc	ggtacggtaa	agcgtttgac	360
ttggccggac	aattgggtcc	agatttatac	tttctgaact	acacctacta	tagactgcga	420
aattggagct	acaatacctt	caaaatttcc	atcatggctc	gctaattgatc	tcaacttgga	480
gcctgcgtct	tctcgtactt	ccatcgataa	tcctatttat	accagagccg	gatcggatta	540
tggttttctg	gtgctgctac	tcttccttat	tctttgtggg	acaatcatac	tatgccagcc	600
agaacttc						608

(2) INFORMATION FOR SEQ ID NO:1498

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 520 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...520

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1498

ctgcactctg	acttctctct	ttctatacgg	tcattagggtg	gatttcatgg	gcctatacag	60
gtatgtacca	tcgcgtggca	tgtggacaaa	ggagatatat	tccatgagga	gtaagcacga	120
ataggcattc	gatagcttct	ataacgttaa	ggcaccacc	cgattctttc	ataaatcaga	180
tgggtgcctc	tgtttttcag	cttacaatat	ggcatttttg	gggctgcgat	tgatatacaa	240
atcatttcga	tttctatata	tattgaaaac	gatttatata	taaattggaaa	atggttatat	300
atagatcggt	attcgatata	acgagaaaag	tatttcaatc	tgaaaaggag	tatttccatc	360
tcttttgat	cataaccaga	cttcttagag	ccgcttattt	ggaatgattc	taaactcctc	420
ttcgctgttg	aaaacttttt	tgcacctatt	tttcggtcac	aataccgatt	ttcttaagtt	480
gtttttaagg	ctaaagatcc	ttctctcttt	cagcctgcag			520

(2) INFORMATION FOR SEQ ID NO:1499

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 620 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...620

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1499

ctccttccag	tcctgatctt	tgatgaaacc	cagacgctca	agctgtttgg	gtaataagcg	60
tagttataaa	tggtagccat	cgtacccagc	tggtcgaacc	ttcgataagc	atcccttcgt	120
ggtccatata	ggtgaaaccc	attggccttg	cagcatatcc	atcccccttg	agcgtgcccc	180
ttcggatacg	gcatggaaag	ggcatctacg	acttcattgt	cgttgatgaa	atcgacgaac	240
ccgaacgagc	gttgttctga	ttccaagttt	cattggcacg	gtgattgatc	atacggcgat	300
gcgtcccacg	atccgccctt	cacgataagc	caagaaatag	atgcttcgca	gaactcaaaa	360
gccggattgc	ggtctttgtc	caaggtcata	attcatcatc	gatcagcccc	ggcacatggt	420
agggattatt	tctatagaga	ttatatggaa	ctgaacgaat	ttcttcagct	cggctttgtc	480
caatacttct	ttattttctac	agccataaaa	ctcgtattta	gtttacctaa	gtagtcaaag	540
ttacaccgga	ttttggacct	ttcacgcaca	aatataactg	aaatagttat	cattttattgg	600
ataaaatctg	catctactgg					620

(2) INFORMATION FOR SEQ ID NO:1500

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 558 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...558

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1500

ggttcaaact	ggccaatatg	tacgtacagg	ccggagagat	agacaaggca	tatacatata	60
caaccgtatg	gaggcacaaa	atgctgtcaa	tgcagcagtg	cctccaacta	tgctgagatt	120
cgggcacgtc	tctacctgat	gaccggtaga	ccaacaaggc	tctgaacgaa	cttcgccgtc	180
tatgcaatcg	attcccgaag	tgaatgagtt	taggctgaag	tatgccggca	ctctgctcga	240
cagtggaaagt	acgacgaagc	ctacgagcaa	ctgcaactga	tagctcggac	ggatcgacaa	300
gtggcttgta	tcattttgct	atggccagct	attacttggg	aacaacgaaa	aagaagctgc	360
catcaacgaa	atgatcaaaag	tagccccgctg	acagggggatg	tggcaccgga	agcagaaact	420
acccgatcat	cctgcgcttt	acgggtaccg	acacagacga	agaggggatgc	accgaaaaaa	480
ggagtataat	tcctgcttga	aaagataactt	gccagccatc	cacttgaggt	gggatgcacc	540
cttttctatg	ccgagctc					558

(2) INFORMATION FOR SEQ ID NO:1501

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 407 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...407

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1501

ntaaaggatc	ccccgatca	gattgagaaa	ctcttcgcga	gtggtcgatc	ctcaaaagct	60
cctgtaaagt	cactggctgt	agtcagagag	ttttgctttc	cactccacgc	atctgcatgc	120
acatgtgctg	tgcttcgata	acgacgacac	cccgagaggg	ttcagcgtat	tctggatgca	180
ctccttgatt	tgtgtatcag	ccgttcctgt	acctgaagac	gacgggcaaa	tacatcgacc	240
actcgggcaa	cttgctcagt	ccggttatat	accgattggg	gatatagccc	acatggcctt	300
accgaagaac	ggcaacatgt	ggtgctcaca	cattgaaaag	aaacgatgtc	cttgacgatg	360
accatttgct	gatagtcttc	ttcgaacatt	gcgcgcgaag	gatggct		407

(2) INFORMATION FOR SEQ ID NO:1502

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 698 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...698

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1502

cggattgttg	taaaataaaa	agattaggaa	acggatattt	tccggtgaga	cctactttct	60
gttagattgt	aagcagttta	tattaaatcg	tatagtgaag	aggctgtttg	tgagatgata	120
aaacgtaggc	acccgtcaaa	ttcgtagaga	attcgacggg	tgcccttatta	gtttggagga	180
tgagcgagga	ctattgattt	gaaaatttat	gctgttgctt	tgtctttttc	tttttcagga	240
ctgttcatta	gaaatcggat	gatgttttgg	caggttttct	gagggcattt	atcttttgca	300
gagcattgaa	tgagacctgt	tgccggatgt	ggaatccaaa	gatctatagc	catcttttcg	360
tttctatctc	acgtcggctt	tcgtgtaaag	gagattgcga	atttagtttg	cttgaaaagc	420
agtgggtttg	agcaatattc	gactgtcgat	tcaggcttat	attcttcgct	cattacacta	480

tatcgatcac	aagctaaagg	attgtacccg	ctctaatagcc	ttttagggga	ttgaactttt	540
ccttacattt	gtccgcgatg	aagctctcta	tgaggagttg	aatatcgcg	cctgagagcc	600
tttcatccga	atgaaattat	atagataaac	gattaaagat	agttagatat	gtgctgcgaa	660
taccctcatg	ctcctaattt	tttcggcgat	taagccgg			698

(2) INFORMATION FOR SEQ ID NO:1503

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 991 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...991

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1503

gagagaggag	attcatacgc	tctgtcactc	tcctattcaa	tttgcgttct	gaccactccc	60
actatactct	cttccggcac	aataccgaga	tggcgggac	gggtccgctc	gcaggattgt	120
ccgccagaat	ccagtagtaa	ttgcggcgaa	atggaagaaa	gccgtttcgg	caccgtcgcg	180
gtagagtttt	cctcgggaaa	gctgatgttc	gaactgcact	cttcttcgat	tgctctgcgg	240
taggcagtaa	agacagagga	gtcaggcgat	aagtctgttc	attcctcgga	acgaaatttt	300
atatggctca	cgaggaagca	aagaggtggg	caacttcagt	tttgcctgtt	tgcgactacc	360
ccaccctttg	atagaaacaa	ggtgtcaccg	ggaatcctat	cagccgtgcc	agatagaatc	420
gcgagtccgc	ttcgccatct	ttctgtactt	tatgaccaga	atatctcccc	tgtccggcga	480
tgcaatccga	tgatccatag	cagctttccg	gaccggtagg	tccgggagcat	ggcatcgctc	540
gaacacgata	ggtagtaaca	aggaagagac	gaatgaggac	ggccgacaca	gaacgactgc	600
cggcaagcca	atgaaaaaaa	ttctgtttct	ataccgcatt	taatctgcat	tgaccgttcg	660
catcattcta	ccgaagcgga	tcttactccg	aagagactct	tgtccttatt	cagggacaac	720
cagatgaata	caggctaccg	acgatatgat	cctccggcac	gaaaccccaa	tagcggctat	780
ctgcgagttg	tgccgattat	cccccatcat	gaaataatag	tccatcttga	agggtaggaa	840
tcggccggac	ggccgtttgat	gagaaccgtg	ccgtcagctt	ttgcacgagc	ttatttcctt	900
cgaatttgcg	aatacaacga	ctgtacaagg	cagattcaat	ggcgtcaaac	gaaccgtcat	960
gcccttgggc	cggatcacga	aggaccgtat	t			991

(2) INFORMATION FOR SEQ ID NO:1504

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 401 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...401

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1504

```
cccagcatga agaccataat cttggccatg ctggcgcgta tcgatcgcag agcatatcgc      60
ctgccgagac gaggttggttc aggctcagga tacggaagtc ctcagcagtc gaaggatgcg      120
gaagaccatc agcacctgtg ctccgcttag acaagggcta tataggaggg aagtatggag      180
atgaggtcta tgatgcgtaa aaggaaagga tgtaccgcca cggtttatga aggcagtaga      240
tccgcggatg tattcgatgg tgaatacaat ggtgataacc cactcgcacc aatgaaaaaa      300
ttccctcgtg ctatgggaca ggccttacgg tactttctgc tgaacgacaa tgacgctcaa      360
gaaaggatga ggcatagcag gagaatttcg aaaagcgttc c                        401
```

(2) INFORMATION FOR SEQ ID NO:1505

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 789 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...789

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1505

```
gacgcaattc ttccaaagca tcggcttcag ccataaggct attttcctgg cctaacgcgc      60
cagatcatct tcctgattcc ctgtttgctg attatccccg attcatgggg ttggacggcg      120
tgtggtggag tctgccgatc agcgatcggc ctcggtcggt ttgtcttttg tgctaattac      180
catacagatg aagcattcaa tcaatcgaaa aaaactactt tcgcggagta attgccttac      240
aaaacgaatc cttttcatga ctcagataat cttaccggaa cgatgaaagt attttcgaag      300
cctttctcct acaatatctc ctgaccctct acatcgcata ccgggaggac aggccctacc      360
gcaaaagagc ctttggcgca aaggttttca cctctgatgg gtgtagtatt caccctgtat      420
ctaatagggt ttgccggcaa cgggttttgc ccgatgccgt gatgagctgc attatgtctg      480
tcacaggctt tggtttgtca tgtccattta tgccatggtt gccatggtga tcgtagagat      540
gcccgtgtcg tggacaagcg tttcctgcac agattcgaca ggctgtccaa agagtgcagg      600
ctcgcatccg attggggctg ttcgttctca taggttttcc tcggctttac tcgtgataca      660
tgcactgaat atcgtgcgct atcccgtgta aagcatatgg acattcgtct ggacagacct      720
gccatagatg gaaggagtcc atgaaagtag ccctgctcac ggatattcat attagcgaag      780
cggtacggc                                     .                          789
```

(2) INFORMATION FOR SEQ ID NO:1506

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2022 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2022

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1506

ggcagtcttg	ggctggccat	ccacagcatc	cgcaaagagc	cgcggtctgt	tttccctata	60
tgggctatcg	tttcagcgag	gacgaaaaag	cgacgctgtg	cattcgggca	atctggggaa	120
acaggtggag	ctgaccccc	aaaacgggaa	cccttcaaag	gctacgtctc	aatcgacccg	180
ttgacctatg	agctggcgcc	cttcgtggcg	accgctgat	cattccgcaa	gagattaaaa	240
gcgtctgctg	accgaacagc	agcatcgga	cctgaccgaa	ggtaagcccg	tgaaagtaga	300
aggtatgctc	tcgctggcg	gcaaaccgtt	cgatgccacg	cttaggtcaa	tgccgagaaa	360
agaggcatcg	agtttatctt	caacgacaac	cttccttcaa	agaacgcagg	caactctctc	420
aaaagccgca	ggcagattct	cgtatggcgt	gccggcaacc	ctctgcaagt	atcagctgac	480
cgagagacag	agaaagccct	ttcggaagga	cgcacctgt	atctgaaaaa	tatggtggaa	540
aggaaggcga	aatcttcagt	gcctatgtcc	gttacgacaa	ggagcagcgc	gtccccgttt	600
ttatcgctat	aatccggacc	aaaagcagga	acaggtcaag	ccgtggccga	agggcacaa	660
acgcaggtag	cccgtcaaca	atgaagtaag	acgaacgaag	ctaccgggcg	cgtaaggga	720
gcccctcaaa	agccgtcagg	taccgcccta	ccgaaaaaca	acaggcaaaa	caggagaaac	780
aagacagaag	cagcctcgca	aaagagggcg	caggatgtag	cccttttctc	cgctcatga	840
accgccggac	ggatgggacg	ccaccgttcg	gccggttatt	tttctcaacc	ttaaccatcg	900
tctccccatg	aatgtatcat	tgccgagaaa	cctcggtcgc	ccgcgacata	gcccgcacg	960
tcggtgcaac	gcacaaagaa	agggctgttt	ctccggaaac	ggccatgtgg	ttacctgggc	1020
cttcggacac	tcgttaccct	tgcatgccc	gaagcatacg	gctttccgac	gtacagccc	1080
agcaactgcc	cattatcccc	gaacctttcc	ggttagtcgt	ccgacagtcc	gcaaaggga	1140
gacctatacg	gacgacccgt	ccgccttgaa	gcaactaata	tcattccgca	gtgtttcgac	1200
cgaagcgatc	acatcatcgt	cgccacgacg	ccggacgcga	aggcgagttg	atcttccgcc	1260
tgatctatgc	ttattggatt	gccgcaaac	tttcgaccgc	ctgtggatca	gtccctcac	1320
cgaaaggcta	tccgtgaggg	actgtcccgt	ccggctgacg	gccggcagta	cgccgccttt	1380
atctctcggg	caaggctcgc	agtgaagccg	actggcttgt	cgtatcaatg	ccagccgcgc	1440
cctctccatc	gctcgcggag	gcgtttattc	ctgggaagag	tacagacacc	gactctgtcg	1500
atgatttgcc	gccgtatac	gagcaccggg	atttccggtc	cgtaccgttt	tggaatcc	1560
atgcgctgcc	accggcctct	ccgtcaaggc	catcgagaa	acgacatacg	aaagccgaga	1620
gcagcggaca	gggcgatgaa	agatctggat	ccgcgcgaag	cactcacgtt	tcgtccgttt	1680
ccgtacaaac	gaatcctgtg	ccaccacctt	tactcacgat	ctgactgccc	ttcagaaaga	1740
agccaacaag	cgatacggat	atacgcggaa	aagacgtctc	ctctggccca	aagcctgtac	1800
gagaaaaagt	gtacacctat	ccccgtacag	gcagccggta	tatcaagcga	aagacatctt	1860
tgagagatcc	cttcgctatt	agaaagtctg	aaagatgac	ccgattatgg	cattacgtcg	1920
aaaagctact	ggcggtacac	ttaaccgccg	gagcgtggac	atacgaaagt	accgaccacc	1980
atgccattct	cttaccggag	aaagtccgcg	cttgaccgcg	ga		2022

(2) INFORMATION FOR SEQ ID NO:1507

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1145 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1145
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1507

taggtctgac	cccagaagaa	aatagatatg	gggcatgccc	gcgccttgcc	agtatccccg	60
atccccagca	tcagcttgcc	ctctatgccg	agatcatcgg	cagggactga	gtgtacgtgc	120
cgtcgaaagt	ctggcggcgc	actaccggaa	gaagggtccg	attcgcccg	caagcagaag	180
aaaaccaagc	agtcccgcgc	gaagaatacc	gcctgctcac	ggggcagttg	tcccgattct	240
tccggcgaaa	gtcaagctcg	actgcgacgc	caagggcaaa	ggcaagctga	ccatcccttc	300
gcatcggaag	aagagctgga	gcgaatcatg	gcccgtgctg	agctatccgc	taatcctcac	360
accgtagccg	tcatgtccgg	aagtcgttgg	agattgtcgt	tttgttcctc	tgcctttgtc	420
tttctcaggc	agcggcacag	acgtcgtccc	cgacagtatc	gggcggcccg	cggcgagtgc	480
ggccgattcg	cggccacgaa	gctccccgat	acgctccgag	tgcagacgct	ttccccgcgc	540
cctctacagc	atcctcccga	gacctccgga	cagccaaggc	gtggaacca	atcccacccg	600
tgcactcctc	tactcgcccc	tcctgcgggg	gtcgggtaga	tctacaatcg	caagtactgg	660
aagctgccga	tcgtatgggg	cgcattaccg	gatgcactta	tgccatcctg	tggaacaaca	720
agacgtacac	cgagttcgca	aagcctatgc	cgacttcatg	ggcggcgatc	cgtcgcaaac	780
ggccggcaca	acttctctcc	ctacggagcc	gacctgccc	attatgtcaa	taggagcagc	840
tcaaagctcg	tctcaagcgc	ggcacggagt	actaccgtcg	cacagggatt	tgagtatcat	900
cattaccctc	ggtgtctact	tcctgacgat	gtggatgcct	atgtggatgc	cgaattgttc	960
gatttcaaca	tctctcccga	ctctcttttc	atttcagtcc	gatggtgggc	acagacgata	1020
agtcgggctt	ttccgttatg	gagttagctg	cggtttcact	ttttgacctc	tccttatgtc	1080
cggatgaaat	actgtctcct	ccctgccctc	attgcctttc	tggccttctg	ccggtccgat	1140
cgctcc						1145

(2) INFORMATION FOR SEQ ID NO:1508

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 605 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...605
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1508

ccccgcactc	ttgagcaggt	catagtcgat	cgctcgtatc	aaagacatac	cgtaggagta	60
gctttgagat	tcttcttctc	tttataaatg	tagttgcgtt	gaagagagtc	tcaatgatgg	120

ctgctcgcgt	agacggccgg	ccgatgcatt	ttctttgagg	gcatcgcgga	gctcttcgtc	180
cttgaccgac	ttgccgccgt	ctccatggca	cgcaggagtg	tagcttcggg	atagaatttg	240
ggcgggtgtgt	cgttttctcc	tgcacctcgg	gggtgtgtac	tccactttcg	ccctggagaa	300
tattggcagt	tttttctcct	cgtccttggt	ctctccatca	tcgccgttgg	cggatcgggtg	360
aaagacaagt	gccgccagcc	cgggcttcca	agatctgttt	cccccggtgg	ttttgaactc	420
taccttagct	gcttggtcca	gccgtgggtc	ggctgaatat	gcagtcggga	tagaaaaacgg	480
ctataaatcg	cgggccacca	gatcgaatac	cacgtcgctc	atcctccgac	ataccatgga	540
tggctgaccg	gtgggaatga	tgcattgggtg	tcaagtgatc	ttgctatttc	gaatacctct	600
gcttt						605

(2) INFORMATION FOR SEQ ID NO:1509

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 564 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...564

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1509

ggattggagc	gtttcctcgc	agagagccgg	tgccatctgg	cagtcagccg	catagcccct	60
tccccgaaga	aaggaggaaa	ctgatgccgg	gtgaaaagct	ttccccatta	tgcagacgct	120
cgaccggatc	agggcttacg	atttcaggga	caacgacgag	tgctcgttcg	atacatcgtc	180
ttcgatggtc	tgaacgcgat	atgcgccatg	cgcacgaact	ggccgctatc	ctccgcggca	240
tccccgcagg	atcaatctga	tccgcttcca	caaaaatccct	gccgtatcgc	tccgtcttcg	300
gataccgctc	gcatggaggc	tttccgcaaa	cgtatggaat	cgttggtttt	acctgtacca	360
tccgtgcata	gcgaggggaa	gatatattcg	cgcattcggc	atgctctcta	cgagcaaagc	420
ggagtcttcc	gaagagaaaa	gtcgtaaggg	cggaaaacgg	actcttttgc	gacaactatt	480
attactacct	tggacttgta	ttcggaagaa	gaaaaacaaa	aggcgaaaca	gcaaaatgaa	540
cgaatacccc	gtttattatt	cggt				564

(2) INFORMATION FOR SEQ ID NO:1510

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 482 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...482

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1510

```
cgaggtaagt accttccaat tcttggcctt ggccatttcc acgtgttcgt tgtacacacg      60
ttctcctcctt ctcctccttc atcgtcgttg taaggaaacaa cctgccttct ccttcagtga      120
tcgtaggcag gctttcgatc aatgcaccat gccggtatct ttgatccggt tggagtagca      180
attcaacggt gtcagttcgg cgtttttgac agatccagag cagtcagctg gttgttgctg      240
cattgagtgc tatcagattg gcgttggcag atacatctaa cttcgtcagc ttatgccgtt      300
gcagaaaaagc cactccaaag ctcgtgttgt cggagagatc gattttgtca gctcgttggt      360
gaagaagctt agagtcgtca gcttgggtatt ggcgagagat tgagggcggt cagctgattg      420
gtgttgcaagt tggagtattt cgctctttgt tggctgcgac attcgagtcc ggcatcttta      480
tt
```

(2) INFORMATION FOR SEQ ID NO:1511

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 403 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...403

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1511

```
tatttttttgg ggcgatatta tcctgaaaga ctttaatgag atagacaaaa cctcgtatcg      60
gccaaagcct tatacagcaa tctgaaagac ttctgggaat ggagaacgat ttctcatttt      120
tgagcgaaag acaggtagca gccattccag tttttgggaa tcctttttctc cagcaagcgg      180
ccaaatggag aatggagtca gcagagtttt ctggatttct ggaagctatt gtccccgctt      240
tacatcggtt caaccaacgt cttgcagacc aaggcaacgg ataccatggg atgaccttcg      300
ccatacagtt gatcgcttcc ggcaaagaga aacatcggta cgaagctgct ctcactctgca      360
gacagagggg ggaatgcaca tcctgataaa tagtcttttg cgg                      403
```

(2) INFORMATION FOR SEQ ID NO:1512

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 559 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...559

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1512

ggcgtagcat	ctgttagagg	aataacgcgc	agcaaggggg	aggaaaggag	gaaggaaaag	60
gagaaagagg	aatagagaga	aaagcaaaat	gatttttgag	agagagaaaa	taaaaaagga	120
gagagcctcg	gattcgagac	tctctcctca	cctttttttc	cggggaggag	ggtggagatc	180
ctatcccccc	ctctcttcac	gcttcttaaa	aaacggcggc	gtcctactct	cccactgtga	240
cgcagaccat	cggcaccgtt	gggcttaact	tctctgttcg	gaatgggaag	aggtgatccc	300
caacgttata	accacctgaa	tacttcgaaa	aggcaatcga	cattcgaaag	gccaacaaaat	360
aattcctcaa	gctttgcggc	aacaaaccaa	ccataccgca	tccttcggga	tgcacaaaag	420
tttcgggcta	ttagtactgc	tggcttaatt	gttaccaatc	atacacctgc	agcctatcaa	480
ggtcatagtc	ttaaccaccc	tatttatgga	aatcttatct	tgaggccggc	ttcgtgcttg	540
atgctttcag	cacttatcc					559

(2) INFORMATION FOR SEQ ID NO:1513

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 526 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...526

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1513

ccacatcagt	tcgataaacc	cgtacatgtc	tgtacccgcg	tgctatccgc	tatcctcggg	60
gacgcgacgc	tgcgtgatca	tctcaagcgt	gtcggctgtg	cccacaaggt	gtcggggttg	120
gaaaagtcga	tcatataaga	tcgttggtgg	caaaagcata	gtccttcttc	tcatcgtaat	180
aaccatactc	cccataagag	aagaacgggt	caccgtatcg	gtgaggatca	tattgccgaa	240
ggcttgccaa	aaccggtagc	acggtcgtaa	aagatcgagt	cccccggtca	ttgctggccc	300
cgttgaggga	ataaacgatg	gagcgatcca	gcaaaatgcc	tactcgggtg	tcgaatcgta	360
cactcctcgc	gtagaaacga	tattagccgg	agccgatctc	atctccgtag	gccccaatat	420
gtgactgata	tttggtatc	ttattataat	gaaagtctct	tcccgtgttc	atggtatagt	480
cccttatctt	ccaaatggga	catttatctt	tcggaaagaa	tggcat		526

(2) INFORMATION FOR SEQ ID NO:1514

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1072 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...1072

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1514

acctgctcta	taatacggcc	tatttcctgt	ggggagataa	gcatgggagc	cctcctccga	60
agtaaagagt	gccgatcgta	tcggtgactt	cggcacgaga	atactcatct	cggcgatcag	120
tgctgtata	tactccgaac	gaagcgcttg	ttcgtctgcg	aatagaagtc	gcaatacgag	180
cagcgctgg	cacagaagga	atatgaatgt	atagtcctgt	cacttgatct	ccatgcttga	240
gggagggata	cggggccggc	cacattcatt	ttgttgatgg	cttgagagac	tactctatcc	300
cgcgtggctc	ccactgttag	ctccttgggc	agcaggtagg	agtgtcttcg	atgcggtcag	360
ccaccagcct	gtcctgcatc	cggccggagg	tgcaatctt	ctgaggaaga	ggcggtagta	420
tactacagct	gtttctccgg	cgctttgtcc	caactcacag	cgattttgcc	atctgtccgg	480
cgtgtcagcc	aggaatttct	gcttttatgg	gagcggcaaa	acccttgcca	tgtatggggt	540
gggtaccacg	tcttcggcaa	atcgttcgcg	aatgatctgc	ggtagtcctt	gctttcgtgg	600
cgaactgat	cttctcggaa	gaggcagacg	ccggcgatcc	tatgtgacgg	gcggagtcga	660
tttgctctcc	gatgacttga	gccggcactg	actgttgtct	acgacccgat	aggtggctaa	720
tcccgggata	atcgagggtc	gggtagctgc	gctttccaat	cttcaaggaa	aggataaaat	780
aggtgtcacg	gtagtagagc	atcggtacca	gaaagtccac	acttccttct	tgtcccagac	840
aacgggatcc	tggtgtaccc	cttcgtaggc	tgtccagtca	ccccacgttt	gccggcgagc	900
tttctcagac	ggccgatggg	agctacgctt	actgtaccca	cggagtcttt	tccgtagcgg	960
ctcggtgaac	gtccgccatg	ggtcggacag	gtttcgccgc	cgccatgctg	ccggatccat	1020
attgncttct	actgttatag	gtggcagcat	catcgaagat	ttggcttttt	cc	1072

(2) INFORMATION FOR SEQ ID NO:1515

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 3150 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...3150

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1515

cgaagaggaa	aaatcgactg	tcagcttcgt	aagacatgac	tcaaagcatt	aggagatact	60
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- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1369
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1516

ctgcgtcctt	cggacaagct	ctaccgggtc	gacaaaagag	aagaataagt	gtagggaccg	60
agagcgaatt	atcacctctc	aaacccgaca	aaacccaaga	tatgaaagag	aaagaatacc	120
tggtctccct	cgacatgaag	gtgagagcta	tgaatgcgac	ttgcagggtg	tggtaaacaa	180
cagcaactat	cagcgcatat	ggagcacacc	cgccatgaat	tctgggaaag	cctcggagat	240
aatttggaca	aatgcacgaa	aaaggtcttg	atgctttcgt	ttacaaagtg	accaaacgtt	300
caaacagtcc	ttgcgtagcg	gcgatcgctt	ccgtagctgt	ctgcctgcc	caagaaaggc	360
cccaaactca	ttttcatgca	ggacattatc	aggaagacgg	tgtgatggca	gcccgtggcg	420
aagtggaaagt	agtagccgta	cggacgggtg	gctcacccgc	ggagagtatt	tcgatgtgct	480
gatgaaagac	ttttgtccaa	aaccaccaag	taacaaaaaa	cgaagtagag	aggaagcccc	540
cgatcactat	acagacggag	gcttcctctt	cttttttgtc	atcaggataa	gccttatgct	600
catactcctt	tcatgtgcc	agacgatcgg	tattccgagc	gtttgccatc	acatttgacg	660
accacttcgn	cgatcttcga	tgagcaacca	caaagattgc	tttagctgca	tcttcctgcg	720
atataaagga	actatccgac	tactccgtat	caatagaaaag	ttggcagaag	agaatcacccg	780
acgcggcagc	acttcttcga	ggacgattca	cccactgctc	cggcagcatt	ggctatacgg	840
gtatgggtttt	caagaagcct	gctcctgcc	atttcaatgc	tgcgattggc	tctatgcctc	900
cgaacatctt	cttatcacct	cgttcctcta	cgtcttttgc	gaccgagtga	catgattcgt	960
ccatacagga	tggaaggatt	gcccattctg	gggcacccgt	cgaagatgaa	gtattcaact	1020
tctggcgacg	tatcttacgg	attttctgat	cgaaaaggta	cgagaaaagg	gtggtgagta	1080
tgttttctgg	ccagtgaaga	aatgaaaatg	ctattcgact	ggaaacggta	gaacaagccg	1140
tacgggtagt	gacacccctc	ttcaaagtac	cacagccgat	ggaggtctca	aacagatcgt	1200
gatctatacc	aaaatggcac	gcggatgatg	acagcccacc	tcctcacccg	ccgatgccgc	1260
catgtggaag	agatcaactc	ttttcgcccc	aaggttttat	cttcgggccg	gagctttcgg	1320
atggagcaac	tatcttttcg	tcatggaatg	aatcgggttt	tacgaccaa		1369

(2) INFORMATION FOR SEQ ID NO:1517

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 644 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...644
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1517

cgagctttgc	tccaccaatc	ggcacaaggc	ttcggttggt	cggtcttgtg	gaaaggctgg	60
aaaaacaagt	cgccgcatga	atagcccgtt	atgctcaatc	ggggaacgtc	attatctcta	120
cacctttggc	atcgccctcg	tgtaccagcg	gtcgatccgc	tcgatattgt	attcgcaatc	180
ggccactttc	acaaaagaac	agctgctgcg	accttcataa	atccgtatct	cataggggaa	240
tgtaattatg	aggattgtgg	tttttattct	aattccgtac	aaatatatgc	tttatctcag	300
tccctctccg	aaaaagagcc	aaagagagga	actgccgaga	tcactttgga	aagagggtgct	360
tgcaccattt	tggggagggg	agagcaaagg	atgtacatca	tgatggcatg	attctccaca	420
aacggctcgg	tatattcgct	gcacgcggac	gagtgacgat	acgtaccagc	ttattgtgtc	480
gcgtatagcc	ccccaaactct	gatgctctat	gcgggtgatcc	gtctcctcga	tgcgataaca	540
tccctctgct	ccgtatcgga	gctgatccgt	ccgttcaggt	gcgtatcgcc	agccagagtt	600
ccagcctgta	ggtgtgcggc	gtattgttgc	tgacccgagg	tcgt		644

(2) INFORMATION FOR SEQ ID NO:1518

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1054 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1054

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1518

cgctctagag	gatccccccg	acttcgagtt	cggccaattt	cttgggaagat	tgccccacggc	60
ctgaaccact	aaggtaatgg	taccgcgctt	tatgtcagct	gtgcaatagt	caggggggatg	120
cgttcgcctt	tttctccaac	gcggatgtta	caaaatgtcc	tgctcttcgc	gattttggcta	180
tacgaggagc	ctctactcca	gcttgatcac	attagccgag	aagtattctt	tggatacgat	240
tttatcatag	taacagtcac	at ttgcccgc	tgctaaccga	agcgttcggc	cgcaaggtaa	300
gaataatccg	ggggggagtag	acaggacaaa	gaaaaggaca	cttcggttggg	gagctgaggg	360
aagcgtggca	gtcacatggg	aataccatcg	gggaaacgga	taaatatggt	agttttgtct	420
gtaaataagt	aagcataaac	acataatgcg	cattgatata	atcacctgct	tgccccgaaat	480
gatcgaaaat	cactcaactg	ctcgcacatc	gggagggcac	aagaaagagg	actgctggac	540
tgaactgca	ccagcttcgc	gactattcca	ccgataaatg	gaaacgtggg	acgactatcc	600
attcgggtgga	gagcccggca	tggtgatgca	aatagaacga	tcgaccggat	tatcaccgaa	660
ctgaaaaccc	agagagaata	cgatgagtga	tattcacctc	tcccgcaggt	gagcgtttcg	720
accaaccgat	ggccatgaac	tgagtctcct	atccaatttg	attgttcttt	gtggacatta	780
taagggatag	actatcgat	cagggaacat	ttgatcactc	gtgagatttc	gatggcgact	840
acgtactcac	cgggtggana	gttggccgcc	gccgtgatga	ccatgcgac	gcccgcctca	900
tccccggagt	tctcaacgat	gccggcagcg	cctgtccgac	acctttcagg	acaatctgct	960
ggccccctccg	gtctataccc	accggccgag	tataaaggtt	ggcgagtgcc	ggatattctg	1020
ctcagcggaa	tgaagccaat	atcgccaaat	ggcg			1054

(2) INFORMATION FOR SEQ ID NO:1519

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 478 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...478

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1519

tgagccggag	gacatctcaa	ctgcctgtcc	gaattgggtgg	aagcgaccgc	ggacgaatcg	60
acatggatcg	gcttcccgtc	ggagacccta	ccctctctcc	aaagagataa	tcggcaacga	120
gagtcaggaa	cgtatgggga	tgctgatcag	gagaaagatt	tggaaatagt	acgcaaaata	180
gccgaacgcg	aacgcgtccc	atgtatgtgg	tcggagagac	cactgacgat	atgcgcttcg	240
tcttcgcaag	gacaatggcg	agtgtcctat	cgacatgaag	ctggacgaca	tgttggcaag	300
cctccccgta	ccatcatgga	ggacagaacc	atagaacatc	gcttcaggca	ccgcaatacg	360
accctgcccc	tctggatgaa	tatctggagc	agtatttgcg	tatggagtca	gtagcttgta	420
aaggattggc	ttaccaataa	gtggacagat	ctgtgacagg	accaagtggc	tcgccagc	478

(2) INFORMATION FOR SEQ ID NO:1520

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 392 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...392

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1520

cccagttcct	cgggggaaaa	tttgatcccc	ccgctattga	ttacgtaatc	aaacgcccct	60
tccacacgaa	atgcctttca	tctacgagct	ccaccatacc	cgggtgcaaa	actcggattc	120
ccgaatatgg	ggagcatgta	tgcaaagcat	ccggattcgt	cccggcggaa	acgcactcct	180
tccaaagcct	cgaacacagc	gaagctccct	ctccgttcaa	tcgcataaga	gccgtatggg	240
atgcctttcc	gtcattccgt	aagtagcgaa	aaaacgggtg	ggaatatccg	ccaacgctct	300
ctcgtagtcc	gtgccagggg	gcctcctcct	atcaaaagat	tttcaccttt	tcgaaccggt	360
ggctttcccc	cgatgacagg	atgtcctcca	ct			392

(2) INFORMATION FOR SEQ ID NO:1521

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 2284 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...2284

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1521

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gctgcttccc caataacgac ggtggtatag tggacgactt cctgctctac gctacgaaga      60
ggaaaaatat atgatggtac ccaacgctgc caatatcgca aggactgggc ctgggtgccgg      120
cagcagaata cgatgggagc catattgaaa atgcctcgga caacatcgcc caacttgccg      180
tacaaggccc gaaagcacgg aagtgatgca acgcctcacg gacatcgacc tgaacgagat      240
cacttctata cgttcaaagt aggtcttttc gccggatgcc ccgacgtaat tattcggcta      300
cgggttatac cggagcaggt ggcttcgaac tctatttcta tcccaatacg ctccagaagat      360
atgggatgcc ctcttcgaag ccggcaagcc cgaggatata aaccggccgg actcggtgct      420
cgcgacacgc ttcgtctgga gtgggtttct gtctctatgg caatgatata tgcgacacca      480
cttctcccat gaggctgggc tgggctggat caccaagttc accgacgaca aaatggatag      540
ccgagccgta agatcatgga agagcagaaa gccggagggtc tcaagcgcag ctcggtgcct      600
tcgaactgaa agacaagggt attcctcgcc agcactagaa attgccaatg ccgaagggca      660
aatcatcgga gaggttactt ccggaagatg tctccttgcc ttaagaaaagg tatcggtatg      720
ggctatgtgg ctacgagttc aacaaggctg gcacagagct tggcatcatg gtacgcggtc      780
gtcactcaag gctgagatcg tgaagccccc attccgcaaa tagtcggggc atttcttgtc      840
ctgtaaaagc attacaggtc ttaggacaac gacagttttt tcaatccatc agcaagggtc      900
ggccttgctg attgatttgt ttttatagac atatctttca ttacatgagt tcgatataag      960
catatggtgc tgactctcat agaacttaac gatcaaaactc ttgttggagc attgactata    1020
accgaatcaa aaaagaaatg gaaaaagggt cgattgccct cttgtcgaaa aactgttcta    1080
tacacatcta tcggtttcac agctcacacg gaacctccca ctccccgatc tgccatccga    1140
cacagagcag atagcatctt ccatcaatag accatatatc ctctcgtatg agaccataat    1200
atcctctcat gtgagaccat agtatctctc atgtgagacc atagtatcct ctcatatgag    1260
accatagtat cctccatatg agaccatagt atcctctcgt atgagaccat agtatcctct    1320
cgttgagacc atagtatcct cttatgtgag accatagtat cctctcatgt gaaccataat    1380
atccttctcat gcgagaccat agtatcctct catatgagac ctagtatcct ctcatgagag    1440
accataatat cctctcgtat gggttcattc ttgtatctcc gggaaaagatc aaatagcaag    1500
caggtgtatg actgccaaga aacagaagaa tgaacaaatg tgcctgcttg ttgtgcaaaa    1560
gtctcataaa tgcaaaggac caagcaaaaag ctattagttc gaagaacatg cagagaggag    1620
ggaagggggag cggaataaaa aaatcggccc tgcgaaaaga gctttccagg gccggaggaa    1680
atagaaaaaa gagcttttgg gcttgagggc ggatgtaata gccgggtttct ccgtcttagt    1740
cttccggcac gtatagattt tcgcgctttc gagctggtaa gctacaccta cgcgcttgcc    1800
tttgctgccg gctcatcgga ggattcgtcg gacggagtgt acttctccac cttgtcgctt    1860
ttttgatcaa gatttccatg ttgtccttgc cgggattctt gacgattgtg tgtcttcctt    1920
gctgaagact tcggtcatgt tgaatttggg gacgagggca ccatcagtg caccggcaaag    1980
accatggcta cgtcgaagag gttggataca gtgaggaagg atccgtgtct tcttcgtgga    2040
agcgtcttct ggacatggga tcaggagagt tttttcgttg atgtaatcga gccaaacgag    2100
gtcgttcgat tgtaagtgcg cacgatgtgc agggctatat accctacagc cgaggcaaca    2160
taccgatgac cgtggtggca aaggctactt gcatattgta ggccactgtc cgatgtcgcc    2220
cgtggagagt ccgacaaggg ccgggccccat cgggtgagcg taccatcag accgagtatc    2280
gggc

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(2) INFORMATION FOR SEQ ID NO:1522

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 485 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...485

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1522

cggctggata	tgctccgaac	gtccgttgcc	tcgggagacg	gtactgacct	gcgggttccaa	60
ttggagtatt	ggggcgatat	atatcggttg	atgaagcagt	ttccctcaa	gcctcggacg	120
aatggctgtt	cggttttacc	tcggatcatt	gctttggatg	aagcaaaaca	ggaaaatcct	180
attggacaat	gctcttaacg	cggcgagatg	gagtcctctc	agccgactgt	cacggatcgg	240
tacttaagga	gttgccctcc	gatacagctg	tacctcccga	agctcctcgc	ctgacgggtca	300
ttggcttgga	accaacctgt	aagctcaggt	agtattaggg	caacgcatca	atatgatttg	360
tttagagcga	ggagcttcgt	tttcgtcctc	tgctgaactc	ctaattggtg	tcctgggtgca	420
cattgggtatt	tatggcacac	cgctatcttt	gcaacccgat	cttattcaat	cctgacctcc	480
aatat						485

(2) INFORMATION FOR SEQ ID NO:1523

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 523 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...523

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1523

ggagcctaaa	ccctcgcaga	gggagggagt	cgngatgtgt	agtttcccga	cttccgagta	60
caggttcagg	ctctgtattg	agcaggctct	catatcggag	gcctcgtgtc	aggatttggt	120
tgtccgccgc	ttgcggagca	tcaggctctg	gctcggagca	atcggcagaa	cctgtcccga	180
ccgatcgaga	actacttccg	aagtactgct	tacagaaaat	gtaaagcccc	aatgctgtcc	240
gatcttactt	tgtgggtaat	aattggatta	tatccggctc	gaatttctgt	actttgatta	300

gaaataggca	tcccattttt	ctttcaaaaa	agaacacaaa	tacttgtatt	atgatgaagc	360
catctctttt	tttgacactt	gttgctgtgt	ttttatgggt	acaataaaaag	gattagcaaa	420
accacaaata	gacaaagagg	tgatcccata	acgaagctga	ctttacgaaa	tccccagaat	480
ggaggcagcg	ggttttatgg	acaaatatcc	catgctctgc	tga		523

(2) INFORMATION FOR SEQ ID NO:1524

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 975 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...975

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1524

cggaatatca	gcgtattcgc	ttatctcacg	acactggatg	ggatgctcgt	taggcattta	60
ttgggacgat	ggttgggtact	atgtctattg	tagtggcttc	tactcaatcg	ctttagagta	120
gaagagatgc	aggatcatac	ttaccgctca	cacgaatata	gtactgcacg	cagcacgagg	180
agggcaaggc	ctataagctc	tcatacaaggc	tctatctctt	gacggctctag	atatgtcggc	240
ttattttcagt	ataaggacta	gcttcataaaa	aacgattgca	cctaacagca	ttcttaagat	300
gctgttaggc	gacttcttat	tactgctgga	gttggtgagt	gaggcttctt	gctcttggga	360
gaggagtgtg	tgctggagct	ggagttcggc	ttgcgttcga	tggctagttc	gtagtctctg	420
acacgagagc	ggagcttgcg	atggagtcgg	aggagtcttc	ggaggagaaa	aggctgtcaa	480
ggctggcgat	tttggctgtg	tatagccgag	ctccattcgt	agaatacga	agcggagaga	540
tgactatcaa	gggcttgatt	gacgccatag	agatgtgtcg	cccaaccatg	acgcaggcaa	600
ggacagcgat	catcacaccc	catatgagcc	attctgccag	cgtttgacat	cgaaaaggta	660
gtatttggaa	agctttatct	cgggtggggt	tgtttagttt	ggagttctgt	caagagtgtg	720
tcggtcgctt	cgtctgactt	atccgtacct	cggtaatgcc	tgacttcatt	tcgtagatgc	780
gctcccaagt	ttagcaatta	cttgacaaaag	ttcctctctg	aatcgacgat	gaactcctgt	840
tgctcctcta	aaatcttggc	gattcctgcg	agattttttc	ctttctcgac	ttctccttgc	900
gactctgttg	gttggtgtaa	attggagata	ccgctttgag	ttctctgttc	tgttgcttga	960
tttcttcgag	tactt					975

(2) INFORMATION FOR SEQ ID NO:1525

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1628 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1628

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1525

```
cgtgtagctt tcgtgctgtt cggttctttt tatactact atctgatctt actctcctgc      60
cggtagccgg gccacaattc tatttccccg ccatcggtgg gatagcgtag cggcagggcg      120
atttccaccc atcgggtcagt actttgcgca cacccgaggc tacaagagat ggaggtggcg      180
catcagggac tgttcttcgt ctggtcaata tgtcacaaca aatgggagag cgtcccactg      240
cggctttccc agtagtcatg tcggcattac aacggtgatc ttcgctttct ttcacgaagt      300
agccggaagt tattctggta cctcctgccc atcgggtattt gccgacactg gcgactgtct      360
atatacaagc acattatttc atcgatgtat tgccgggtctg gtttcgggac tcttattcta      420
ttatggaggg aacaaactgt atcgtggctg gacatcgta tcagtggccg gaggagcaaa      480
ctgcaaagca accagccggc cggggaacga acggacgaaa aaacgaatat ctttcgggaa      540
tagctaaagt gaaacatcta aaagacacta tttcaatgga aaagcctttg tattaggagt      600
ggatgtaggc ggtaccaaca ccgtattcgg agtggtgacg ctctgggcaa tttgggtata      660
agttcgtcca tcaagaccgg agcgcaaacg atctgaacga ttatatcaaa gatctgactg      720
ccggcatcaa tcagtgattg aacaggtagg agggaaagag aagataaagg gtatcgggtg      780
aggtctccca atggaacta ttataccgga tcgatcgagt ttgcgccc aa tttccttgga      840
aacagaccca aatacccttc gcccaaatgc tcaccgattc ataggtatcc ccacgacact      900
gaccaatgat gccaatgctg ctgccatcgg aagatgacct atggagcagc tcgtggcatg      960
aaggacttca tcgttatcac ctcggtacgg gggtcgggaag cggcatagta gtcaatggca      1020
gcttggtgtc ggacacgatg gatttgccgg tgagctggga cacatgatcg ttcgccgcat      1080
ggtcgcatgt gcggttggtg cagatagggc tgtctcgaga cttacactct gctacaggag      1140
tagcccgtac agctcgcgaa tacctggaca tccgttggac aagagcttgc tccggaacat      1200
tcagcccgat ctaatcactt cgaaaatgtt tacgatgcag ctatcagtgg cgatggcctt      1260
gctcaagaga tattgagact acgggagcca tcctcggaga ggcttttgcc gacttcgtta      1320
cctctccagt ccggaagcga tcattctctt cgggtggtctt accaaagcag gtacctgctg      1380
atgaatccga tccgccacca catggaaaag aatgtgctga aatctaccga gggaaagacca      1440
agctgctctt ctctcagctc aaagagagcg tgccgctgtg ctcggggcaa gtgctttggg      1500
atgggaggca aaataaacgt gagcatccgc tcgcaccttt cagatactgt ccgcgctgcg      1560
gaaacgatgt tttgcggaga gaaacccgaa agccaaatcg tgtccgaagt gcggattatt      1620
tattatgc
```

(2) INFORMATION FOR SEQ ID NO:1526

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1068 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1068

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1526,

cgccggcgag	ggagaaatag	acgaccatgc	catcatcagc	ggcggagtgt	gatacaccag	60
ttcgtacgca	tctctcagca	tgtgatgatc	caagggtggc	ccgcctctcg	aaggacatcc	120
ctccgtatgt	actgggtggga	cgggatctct	cgtttattgc	ggaatcaaca	tcgtaggtct	180
gcgccgccga	aattttccaa	cgagcagatt	ttcctgatca	atgatattta	ccgcacactt	240
taccaagagg	actgaataat	tccgatgcga	tcgatattat	ccagcaggag	tacgcgattg	300
tcatgagaag	gaacttatat	tagactttat	caagtcttcc	aaagcggcat	tgtccgcgga	360
accatggagt	gaagccatga	tcgggatatt	catggagcac	gcataagga	gcttgaccgc	420
tacacgatag	agcacgagcc	ttctcttcga	tcgatttagt	cgaacgagca	gccgccacat	480
gggtgtatga	ttcgaacgtc	tctacaccca	gcagcgccgg	atcgtagtct	tcgccggcct	540
ggcaataatg	gagcggatgc	cctgtgtgca	gcccgtattc	tgggcgaaac	ggctattcgg	600
tggatgcctt	tctcttcaat	gtcagcggat	cgctcagccc	gaatgcaacg	aatgcagggt	660
acgcctgttg	gagacttcgg	ggatcagctg	accgaggtgg	tggacaactt	cattccgccc	720
gaactttcca	gccagccata	gtgggtggacg	gtcttttcgg	cgtgggactg	aatcgctctc	780
tacaggcgga	tttgccaagg	tcgtggagtt	cctcaaccaa	tccggagcag	agacgtatca	840
atagacatcc	cttcggggct	gttcgaagag	gataacttcg	gcataatccg	aatgccatca	900
tcagagccac	acacaccctt	acgttcgaat	acccaaacta	tccttcctct	tctccgaaaa	960
cgccgactat	gtaggcaagt	gaaagtcctg	aatatcggtc	tgagcgtcga	aggaaaagcaa	1020
acgatcaagc	agagtatttc	ctcaataaccg	atttcgatat	atccggca		1068

(2) INFORMATION FOR SEQ ID NO:1527

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 468 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...468

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1527

cgtagcaaaa	atcccagccg	tataggcccc	gttgctgcgc	ttttattgta	tcgctattgg	60
tatcgaacag	cctgttcgaa	aagacgaagc	tcagaactat	ttctcagttt	ttgccttaaa	120
tttgttccgt	tattacactt	gctattgaaa	gtgcgagctg	ttgatagcca	atttcttttg	180
cttaaatcat	tgaatcgatc	aaaaaataga	ctaaagtttg	tctgtgaaag	cccatttgca	240
aatgagagta	aatggatatt	tatacaatgg	tttaaataata	ataatataag	aatgaagacg	300
aatctacaaa	taaatttggc	tccttgaatt	taagcggttc	ttgcctttcc	gttatatgtt	360
cttggtgcat	tggatcgttg	atacgactat	taagttgcc	gaagaaactt	cccgaacttct	420
gaattatatt	ggatcttgct	attggatatt	cttttttggt	gagtttgt		468

(2) INFORMATION FOR SEQ ID NO:1528

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1621 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1621

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1528

cactatTTTT	gccgaatcTT	aaacacCTTT	tcaccCTTca	catattCCTa	acagatagac	60
ccgcggataa	aatgggcaga	ccgttgCact	tgataattaa	tgtgcagatt	acgattccCT	120
gtagtttcgg	cttcgctata	tttgccgCCg	atagaggTTT	ctacagaaag	cttaatgttg	180
cgaccgaaca	gtctttgaac	gaatagaatt	actttaataa	acgactaaac	gataataaat	240
tatgatactg	aaattacCTc	ccacacgcga	gctttgcggT	cggcattgtc	gccccacaga	300
tacattcgac	atcgagtat	ttgaataaaG	gggaggctgt	atcgacaaat	aaaaaggaac	360
agatcctctc	cataaagcac	tcaaaataaa	gaacacgcgc	cgagttctat	agtgaacctg	420
gcgcgtgtct	ctttatTTat	gccctcgata	agggcCTTTt	gggctatccg	atttatatac	480
aaatggcaat	aatctatata	ttaatcaaaa	gcgatttata	tataaattag	aaacgatcTT	540
atacaaatcg	aaaacggTTT	atatataaat	cgcaaatcaa	cctcctacaa	gcgaattgca	600
agccccaaaa	ggtcgCTTTc	ttgtctctTT	cacctcaaat	ccgcttcCTt	tcggatacTT	660
atttggaatg	attctaaact	cagcttgTTg	ttgaaaactt	ttttggcacg	tatatTTcat	720
agagcaacga	agacttcaga	catccgaaag	aatggacttc	tgatacCTTT	atggaaattt	780
ccgaagactg	atggttctct	gtcggccgag	caagtcttgc	cagacttgaa	ggttgtttggc	840
ggaatgtccc	gaatgtgtag	accaagaaag	gaattcgaat	tcgaactccg	ctcgaatgct	900
tcttgcaaaa	tttacCTtag	tattgcactg	aagccggaat	ccgcagaatc	tgcaaaatgc	960
tttaattacg	gacaaaaagt	tctttttccc	tatctttgcg	accatcggaA	aacaaataaa	1020
acaggatttt	gtatggaaac	tgtagtcagt	ggtatcaggc	cgaccggcaa	tctgcattgg	1080
gcaattatTT	tggtgctatt	cggagttttc	tggatatgca	gcacgaata	attgctTTTT	1140
ctttattgct	gattggcatt	cgctgaccac	acatcccatt	cggataatat	agtccgcaat	1200
gtgcgtacga	tactggctga	atattggctt	gcgggatcga	tccggagaag	gctacaatct	1260
atgtacagag	tgattaagag	aggtgctcga	gctttatctc	tatctgaata	tgaatgcgta	1320
tttggcgagc	tggagcgaac	gacatctttc	aaggaaaaag	cccgtaaagc	gcgaacaatg	1380
tcaatgccgg	cctgctcaca	tatccgacat	tgatggcagc	aacattctga	tccatcgtgc	1440
cgtgaaagtt	cctgtcggaa	aagatcagga	caaaacatgg	agatggcacg	caagtttgcc	1500
cgccgtttca	atacgatctt	gaggtggact	tcttccccga	acccgaatcg	ttctctccgg	1560
gtgcaacact	ttgaaggTgc	cgggcttgga	tggatccggc	aagatgggca	agagcgaggc	1620
a						1621

(2) INFORMATION FOR SEQ ID NO:1529

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 545 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...545

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1529

cagagagttc	ccatacatga	gtagtatct	ctaattaaac	gcccacagcc	tcttttttcc	60
cgatggaaaa	ttcggtgcta	ctacctgtca	aatatagaac	aaaattatcg	aaatgacctg	120
tactgaaaaa	aatcgatatgt	tgttttgagt	agataggatt	gctgtgcttg	tctacttggg	180
aactcctgcc	gagagatcctt	aatcaagggg	cgaggctaca	agcgaacaac	ttgggcaagc	240
aggctatatt	attggcccaa	ggagactcctt	gataacacaa	cgaaggagag	acacggaagt	300
tcctctcctt	tctattgcca	aaaactgact	tttaggacac	tatgatgcag	atccgatatt	360
tatgttttcg	gaaggatatct	ggtgagtagt	ttatcggata	tcnggggctc	tcctcctctc	420
tcttcttctt	tttgtaacca	ctcaactttt	tctgtgcgag	tttttacaca	tctgcggctc	480
gtgtttttcg	aagaggtggc	gcgagatttt	tttcgttctg	gcgcgtaaaa	attttacttt	540
cgcg						545

(2) INFORMATION FOR SEQ ID NO:1530

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 432 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...432

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1530

gcgtctggtc	atgatccatt	cacgtccgtc	caattcaacg	atgttatccc	ggttaaattg	60
gacacatcaa	tatacgccag	gccactgaaa	caggagaaat	gaaaatatcg	cgaaccaa	120
ccaatctggg	tatggatatt	tcttttcaat	gattcgctga	atttcttcat	cggttagaaa	180
ccctctgctg	gaatctgcgt	atgaaaccgc	ttgttcacaa	aggggtcatg	agacagaaat	240
ccatgctgcg	cccataaaga	gtaatgggtt	tgaaaagctt	caagattttg	gttgcgtatt	300
cggacaacaa	tgagctacag	tcagcagata	tatctcaaag	ttagaatgac	caacggggta	360
agctctgaga	atttgagatc	cgttctgttg	tattcgcttt	gaggaatcgg	gtaaaaatgcc	420
gttgctggtt	tc					432

(2) INFORMATION FOR SEQ ID NO:1531

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 594 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...594

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1531

atcctaacta	tctgcgcgat	gccgtattcg	atcctcggaa	aatctcattt	tcaccgattc	60
ggatctgaac	agttttttca	gagccagcga	tgtgggtggc	ttgtcactcc	ttegcctttc	120
atcaaatacct	atctgaaacg	cgttcgccgt	ccagcatgcg	cgacaagctg	attatcaatg	180
ctatcaaggg	gatcgccgg	atgagaatgt	cttgggtatcg	gaatatctgc	acgatttctg	240
cgatgcccc	acgaactgat	aggtgtagtc	tccggtcctt	gccatgcaga	ggagtggcca	300
gagagcgcag	atcatatctg	acggtgggct	gcttcgatat	caaaaggcaa	aagccatggc	360
aaacgtacta	cgcaacgatt	atgtgaagct	gtcgaccagt	caggaccgta	gtaggcacgc	420
aatatgcctc	gggtctgaag	atgtttatgc	cattgctgcc	ggaatatgca	acggtcttgc	480
agtatggcga	aactttcaag	tctgtcttga	tgtcgaatgc	cattgctgaa	atgaatagtt	540
cgtcaatacc	cgtcacctct	tggaaagaga	gatcacggat	tcggtatatg	ggcg	594

(2) INFORMATION FOR SEQ ID NO:1532

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 376 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...376

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1532

cgagccggac	gtatcacacg	gcatgattcc	catagtccag	catccctgcg	gaatatgatg	60
tgtgactacg	cttccggctc	caatgacggc	tccccctccc	gatgtttaca	cccggcaggc	120
tgtaggtttg	aaccagcctc	gtattatacg	tcagttcgac	gtaagaaaac	gccaatgaat	180
aattcttttc	ctgatcgagg	ctaataccct	aaaattctca	gacaaatagg	ggtaccctgc	240
ttctgttgga	tgaaccaaac	attgaaatc	ggattgcttt	tttgaccgaa	tggtcagtc	300
gtacagaaa	atgggctata	ccatagggca	catggaggta	ctcgtagggg	atgacgagct	360
atcccgtaca	gctctt					376

(2) INFORMATION FOR SEQ ID NO:1533

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1344 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1344
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1533

ggactgatgt	ggtcgatgaa	gagcttcccc	tcgatatggt	cgtattcgtc	tgtaccactc	60
ttgccgcaaa	gccctggagc	acctcttcgt	gcggctgaag	tcctcgtcca	catagcgaat	120
acggatggag	gtggggcggt	ccacctttcg	tgtatggccg	gaaggctgag	gcaaccttcg	180
tattcgggtc	agagatttcg	cctcgtctct	cgatatgggc	gttgatcatc	acgcgcttga	240
atccgcacat	tcgggataat	cctctttcag	cggatcggca	tcgatcacga	gtacctgatg	300
ggtaagccta	tttgaggagc	tgccaggcca	atgccgtcgg	agtgtacatg	ctctccgtca	360
tgttggctat	cagctctttc	agtttgggat	agccggagtt	atatcttctg	ctacttttct	420
cagcaccgga	tgtccgtata	gtagatagga	aggagcattg	ttctatcgaa	tagtatttgt	480
gttcttgtga	tgtcttttct	cttgtctttt	gggtggaaaa	tgccgtcccc	gtctcgaaga	540
gggggaataa	gccgtctcgc	tcactgtcgc	ggattgtcca	gatacgacgt	aggatgatga	600
ccgcactgac	ctcatccacc	agagccttgt	ctcgcgcgtc	atcttgccct	tcccggcttc	660
cagaatagtc	ctctgtgcca	tgcgcgggtg	aagcgttcgt	ccacgtacgt	tataggtata	720
gaggggaagg	cttggcaagt	ttaacggcga	agggggcggt	ataggtcatc	gattcggact	780
cttctagttc	atccggcggtg	gcagtcctag	cacgaaacgc	tccaccgggt	cccgtgacg	840
tagtcccgc	ggaagtccag	cagcgtatgg	gtaggtacag	tgtcagtcgg	cccggaatga	900
ttttcagttg	gtcgggtgacg	gcaagtcccc	tcttttgcgt	ccgtagtcga	tagccagtat	960
tcgtcccata	tccgtgcaaa	atacgaaact	aaagccagtt	ccattccttt	caattccctt	1020
tggctcctgt	gcgcattccc	caaacgtgaa	aaacacgagc	cgcaataact	cgaatcgaga	1080
accacagttt	ctgaaaaaac	gtgccaaaaa	tttttccttt	tggcgcggat	ttttttcatt	1140
cccgaaccaa	aacgaaaaaa	ttctcgcgcc	acgttttcag	taccacaagc	accggttttt	1200
acgagccatt	ttcccttttt	gagactttgc	acaacaaaac	gtcactttta	ttcatttgat	1260
aatctcccg	ggtaactcct	tgctgcaggc	ctgcggcaag	aaatctttat	gcacaaaatc	1320
atcttgccgg	tgtgcggaca	gcag				1344

(2) INFORMATION FOR SEQ ID NO:1534

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 496 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...496

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1534

gcgccagctg acaccgcagg agagacaaga gctttggagg ctgattcgga tgtaaaacgc	60
accttgccct atgccaaaat gatcgagctt actctgatga aacgtacgaa tatatggaaa	120
cgatgcccga tgagaaaagc agacaaagca tctcaagcgc atggaaaagg agatgaagca	180
gcaatacatg ccggagtga aagactgacc ctccggcagg ggaagctcct gatcaagctg	240
atcgacgaca gtgtgcacag tcgagctatc agctactcaa agcttttctc ggcgatggaa	300
agcgggatgg tggaatctct tcgcccgtt ctatggtgcg agctgaagac tcggtacgaa	360
cctgacaaga atccggaaga cgccctgacg gacgaatagt tttgttagtg gaagagaaaa	420
gaatttaaca aagttctttg cactttcggc aaaaaaggct atattggcct ttgtttttca	480
gagacgactt gattat	496

(2) INFORMATION FOR SEQ ID NO:1535

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 678 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...678

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1535

ccctgcattg ataaccactt tacgcttggt gatagcagtt accctaccct tgccacttgc	60
ttttcgttga tggatttgag cgttttgtca taagcagctc ctgctcctga cgactcacgg	120
cagcatggac gccaccggcc tcaaaccttc ccagttgaaa tcctctcttg gctgaatggt	180
ctttaagttt tcatttggtt tttaatcgtc ttgttgctaa tagattggac attatatggt	240
catattctca aaagcacggc aaagttacaa taacttttcg ttactctctt catttgatca	300
acctgcagat tccccccacc ggtgcaacat taagcaagcg acccaggatt gactcccaag	360
agtcaaccga aatcaggaaa cgacactatt tgaattacaa tgttgcaata tcgatcttgg	420
cgtaaaactg atcggaacg gccgatgttt cttcacaatt actgcttttt ttgacctcct	480
caagcctcat ttttcagtac acgtcacgtc agtcgtcagt ataaaaaagt gacgcgtgct	540
ttcctgaaaa ggcgcgcgag aattttcccg ttttggcgcg agatgttttc gttctggcgc	600
gggaattatt tttttctcgc gccaaaacaa aaaagttacg caccacgttt tcaggggtga	660
taagccggaa attttggg	678

(2) INFORMATION FOR SEQ ID NO:1536

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 492 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...492

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1536

tattccttat	agctggcagt	gtcctacaaa	agtgtctaag	ttcctaaagc	aatactcatc	60
gtacgcacat	gattcaaata	tctgttttcg	ttactcttaa	gtctctttac	cattacgtaa	120
tctacttgat	tctctttgac	cacattgatc	cgctgcttag	atacattttt	gtcgcaaagt	180
tggctttttg	tacagaagtg	aggtttgat	agcttgctgc	gcgaagatga	tcaagtaatc	240
tccaacgtct	aatgtgattt	tcgtaaaatg	ttctgtacga	aaatcgttca	tcaaggaatc	300
ggtttggtgt	gttctgtgtg	agtgtaaagta	aaccgcgatt	tttttgtagc	ctcttcgatt	360
tttcattgcc	gtcaaaaataa	ccgcacccaaa	ccctgtctgc	cgtaaaatttt	caaaagcata	420
ccgaagcact	ttcgtttaca	gttcaggaat	taagccctgt	ccccaaaatg	gttcgccaat	480
ccagaatcct	tt					492

(2) INFORMATION FOR SEQ ID NO:1537

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1157 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1157

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1537

gtattgaagg	tcgtatccct	tggtcgctat	cacatccctt	ggcttcatcg	taaggacgag	60
gtcgtatccg	gcacgatgga	tgcgcgccaa	gacggcttaa	gctctatgtc	caccatccgg	120
cgaatctccg	tcttgcccag	ttggctcgaga	ggatgatata	gtccaaacgg	ttgagaaatt	180
cggggctgaa	cgtcttttca	gagctttttg	gatcacggaa	cggctatgct	ccttgttcgc	240
ttcctgtcct	tttccgaacg	gaacccgata	ccctgcccga	agtctttgag	ctgggtgtac	300
ccacgttgga	ggtgatgatg	atcacggtgt	tcttgaaatt	caccgcccgc	ccagactgtc	360
ggtcagctga	ccttcgtcca	tcacctgtaa	gacagattga	agacatcggc	atgcgccttt	420
tcgatctcat	ccaagagaac	ccggaatagg	gtttgcgtct	tacgcgctcc	gtcagttggtc	480
cgccttcttc	tagcccatat	atcccggagg	ggcaccacag	agacgcgaaa	cggagaactc	540
tccatatact	cgtccatata	caccctgatc	atggcattct	catcctcgac	aggatatcgg	600
cgagcttctt	ggccaaatag	gtcttgccca	cccccggtgg	ccgaggaaaa	ggaaaagaacc	660
gatcggtttc	ttttcattgc	gaagtccaga	cgattgcgct	ggatggcatg	caccatcttt	720
tcgatggctg	tgtccgacct	actactttgg	tcttgagatc	atctgccatc	gtgcgcagac	780
gttcccttcg	cccgtgctca	gccgctcagc	cggaacgcct	gtcatcaacg	ccatacatgc	840
gccactacat	tctcgtccac	cgtctcgcgg	tgcttgagaa	tcgctcttcc	cattttttct	900
tctcttccgc	tatctgctgc	tgagtgcgcc	gtcctgatcg	cggaaggagg	cagccagttc	960
gtagttctga	gcctttacgg	cgagagcttg	ttctctcgca	ccgatgccaa	ttcggcctcc	1020

agtatctcgt	ttctttcggg	gccaccacat	tggtgatatg	gacgctcgcg	ccggcctctc	1080
catggcatct	atcgcttat	ctgggaagaa	acgatcggat	acatagcatc	ggtcagttcc	1140
actgccgctt	tgatcgc					1157

(2) INFORMATION FOR SEQ ID NO:1538

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1583 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1583

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1538

gatataagagt	cccttgctgt	gcctgcaata	tccgtcacga	tatgcctgtc	tctccgatga	60
aggcattcag	caaggagctt	ttccctgcat	tgggcggcac	gatggetatt	cgagggagtg	120
tttcgtccaa	atccgattgt	ccgttcttgc	cggcaatagc	tccatcacc	tgtcgagcaa	180
atgcctgtt	cccgaacgct	gacagctgca	atgcagtaag	gatcgcccaa	gccaaaggaa	240
tagaatcgaa	gcggaataat	gatcttcggt	attgtccacc	ttattggcta	cgacataacc	300
ggttttttgc	ttcggcgcgag	tatctcggcg	acttgctcgt	caaagaagtc	actccggtct	360
ggttgtctgc	gacgaagagg	actacatctg	ctcctcgaca	gcaatataca	cttgcttatt	420
gatttcttcc	tcgaaaacat	ctccgaattg	accacccaac	ctccggtatc	gacgatggaa	480
aactcccgac	gttccaatgc	acccggccgt	actgcctatc	gcgcgtagta	ccggcctctc	540
ggctacgatg	gcttgccggc	tttgggtaag	gcggttgaac	aatgtgcttt	gcccacattc	600
ggacggccta	cgatggcgac	taatgctccc	atatctattc	tactctatga	tttcgttctg	660
attgttgctt	gtcaggctac	gaccgagaag	gactaatcca	actgatagcc	gaaggcacga	720
agcagattat	ccctgtgcgc	cagtcttttt	cgaccttcac	aaagatttcc	aagaaaattt	780
tcttccgaag	aaacgttcca	aatcacgccg	ggccattgac	cctacacgtt	tgaggccgcc	840
cctttagggc	cgatgattat	tcctttttga	gaattacgct	cccgatgata	agcgacttga	900
tacggataat	ggtcttctcc	tccttgaatt	ctccacgacc	acttctgccg	catagggaa	960
ttctttttga	taatacagca	tatcttctca	cgaatgatct	ccgtaacgaa	aaaacgtgcc	1020
ggcttgctct	gagtgcatct	ttttcaaagt	aaggaggaga	tgggggaatg	aggctttcat	1080
acgcttctgc	agcaatccga	cgttaaagtt	gttcgtggcc	gaaagagggtg	aatttctgct	1140
ttgggcaata	tattgcgcca	ctcctccaca	agttgtccaa	tgcttcctga	ttgctcaggt	1200
cgatcttggt	gatgaccaga	agtacgggca	ttccattcgt	gatacgcgag	cgagaaaatc	1260
agcattctta	tcagcttctc	caccacgtcc	gtcacataaa	ccagcacatc	ggcatccccg	1320
agacagattc	ggagaactcc	cgcatttcct	gttggagttt	gtaattggga	cgagtactcc	1380
cgggtgtatc	gaataaacga	tttgcattct	cggcgatttc	aaatcccat	gattctatgt	1440
ctggtgtgct	gcgccttgga	ggtaattgata	aaatccgctc	accgacaagc	agatttatca	1500
gtgtactctt	cccaacgttg	ggtttccaac	gatattgaca	aatcccgaac	ggtgaccgga	1560
ctcctctatt	gcatttcgaa	gct				1583

(2) INFORMATION FOR SEQ ID NO:1539

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2310 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2310

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1539

agggttttcca	cgggtgtacat	cggcacctgt	caccatgttt	gcaggactga	attgtcgcca	60
ataacttctt	tgcaaacgct	gcaatatatc	agtctgggcg	aacctgtcac	cagcatgata	120
cgcaaaagccc	cggtcacaaa	cgtcggaacc	agagccggag	catcgtcgat	cacgtttccg	180
gaattgtaca	aagcgagagt	tggctcttgc	gcccgtacat	atcggctatt	tctttttctg	240
tcggcgctcg	ccgtatcccc	gttcgaacag	gatcttgatg	gtatcgctac	cctttgtcct	300
tcccagcgat	agaaatccag	cggctccgca	gcgataccgc	atttccggca	gcctccaccc	360
aactccgtgc	atgtgccggc	atggaatcga	acgcactccg	tccatatcga	aaaagcacga	420
acggagagggg	gcatgccggg	agccttctct	gtgcggaaag	cctgtaatgc	ctccgttatg	480
ttattgtagt	catcgactct	tttttctcca	ttagcttatg	acactccagt	cttcctcctg	540
gggaaaagtt	tgttcagacg	aagagccagc	atttgattgt	cgggatggga	agttcggggg	600
cgcgctccag	tagttgctcc	gctatacttc	gggaaaggct	atcagctccg	tatctcgtgc	660
gggattggct	atccgaaggc	tgatctacga	ccgctctggc	gcgtaccctc	caagtcgccg	720
aaaccacgaa	ggcgctatct	tccctctgcta	tttcgaatcc	atcgttcgtc	tccaccatca	780
cctgatacgc	cgacgcgaat	cctctcctgt	tttcgttccc	gtgatcagga	tgcatagctt	840
tgcctctcct	cgcggcctac	acgtcctcta	agctgggtga	gcgcgacagg	ccgaaacgat	900
cggcattctc	cactaccatc	accgtagcat	tgggacattc	actccgactt	cgataaccgt	960
cgtagccaac	aagatacggg	gcgaccgctg	acgaagtcgc	ccatacgtgc	ctccttttcc	1020
ttggctttct	cttgccgtgc	accatcgta	cgccctcatc	ggggaaaatg	gaagagaaag	1080
ctcgaagcca	tcttcaagat	tcttcagatc	ggtcgtctcc	gacccctgat	catcggtac	1140
accacataca	cctgccggcc	tgcggcaagc	tgagatgcag	gaaacgaaag	accggagcca	1200
tatcgttgtc	gaagtgggtg	agcgttgtat	gggcttacgg	ccgggaggca	attcgtcaat	1260
gatggaaata	tccaatcgcc	gtacaacgtc	atggccaatg	tacgagggtat	gggggtggcac	1320
tcaaatcaga	atatggggca	gagtgctnag	gttcttttcc	cacaggcggg	ctgctgctgt	1380
acgccgaatc	ggtgctgctc	gtctatgact	gccattccca	acgacgaaag	gccactccct	1440
gttccaatag	ggcatgcgtg	ccgacgacga	ggagagcgag	ccatcgccca	gacgcggaag	1500
caagcgttcc	cgctgacgtc	ggtacagctt	ccgatgagca	aaccgacttc	tatgccaagc	1560
ggtcgcaaa	ctcggacagg	gtatgatgat	gctgtctggc	gagaatttcg	gtcggagcat	1620
caggcaagcc	tgacagccat	tgtccagagc	caacagcatg	gacagcaggc	taccaaagtt	1680
ttaccgctac	ccacatcgcc	ctgcaccagt	cggttatttg	atgtccgctg	agggtatcct	1740
gccggatctc	ccgtatcacc	ctttctgcgc	accggtcagt	tcgaaaggca	gatgttcctt	1800
gtagaatgta	ttgataaggc	tcccacttga	gcaaaaacaa	ttccctgaaa	acgcgcttta	1860
cgtccagctt	gctgccgata	agatgcagct	gcacatagaa	cagctcttcg	acttgagtct	1920
tgtacgggca	gcttccagct	gtgccacccc	ctgagggaaa	gaatctgtct	gatggcctcc	1980
tgataggaga	cgaaccata	agacgaaaga	tgtaaggcgg	cagtgtctcc	gtcagtgtgg	2040
ctgatacctg	attgaggata	cgtacaggag	ttgctggagc	tgtttgctgc	ccagccccat	2100
actcttctgc	gctctgtggg	gtgataaatc	ggagtcagtc	cgccggctac	ctgctcgctt	2160
tctcctccgc	atctatttcg	ggatgtgcta	tgttatagcc	ggaaggaaga	aaactggctt	2220
gccgaaaacg	atatatcgcc	gtccttcctg	cagttgtcgc	gtatgtactt	gatacccttg	2280
aaccaaacca	gctctatgct	tccgtaccgt				2310

(2) INFORMATION FOR SEQ ID NO:1540

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 427 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...427

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1540

tccccggccc	gacatggtgg	aaaatacgaa	gcagcagccg	tcggagaggg	aacgtggtga	60
cgaagatgaa	agaaatcggc	gccctcatcg	gaggagaagc	aatggcggag	taatccttcc	120
ggagcttcat	tatggacgcg	atgcattgtg	ggaatagccc	tattcctcac	acatatggcc	180
aagcgcaagg	aggcgggagc	cgcattcgag	ccgaataccc	tgcatacttt	atgagcaagc	240
agcgatggac	acccctgcag	gtaccgatac	gcagcgtctg	cttcagacca	tgttgaaagg	300
tataagaacg	aacagatcag	taccgtggac	ggcgtgaaga	tcgctttccc	gacagctggg	360
tacatatgcg	caggagcaat	accgagccga	tctcagggat	ctacaccgaa	gcccgtacgg	420
aaaatgg						427

(2) INFORMATION FOR SEQ ID NO:1541

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 987 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...987

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1541

cggctcctta	ttatgaatca	ttttcagttt	ataaaatcga	ttccaataat	atatagagaa	60
cgaaaacgat	tcgcatatag	accgttggct	ttcgatggcg	tttcgggaga	tgataaaaca	120
gaggcaccca	ccgagttcgt	gatcgaacgg	gtgggtgcct	tatatccttg	gttgtcgata	180
ggaggcttat	cagtcttatt	gatcacaagg	atttttgttt	gttgtagggc	gaatggatta	240
gatcacttca	gctcttggat	gagacggggg	cactgacccc	atgtgtcaat	catgagagaa	300
cgtagcggat	gtccacgctg	attgtgcgct	gcagatcggg	ttcaactcga	tgtcaccact	360
catagcttcc	cagttgccat	cgaagcaag	acgatcagac	ggccgttctt	atcgaatacg	420
gggctaccgg	agttaccgcc	ctgatgtcgt	tgttcgatag	gaaagcgata	tggagctgac	480
cgttctcggc	tagcgaccat	agtttttggg	gcggaagagg	tbgaggatat	tctcctgtag	540

gcaaactcat	cgctcttaag	gaatcctgct	tctccaatac	gcccttgctg	tcgtatgata	600
gttgtagcag	gcaccgtcct	gcggttcata	tcccttgtagg	agccgtagct	catacgcag	660
gtgaagttgg	catcgctcgg	cagagccgtc	cggggtacat	ctcacgcaaa	ccggcaaaga	720
aaagacgctt	gccctctcaa	tggcataggc	attggccatc	gcacggcct	gaatagcgcg	780
agcacagcta	ttacgctctt	ggaaagctct	actgccggat	cttttctcga	tagcttggca	840
aacttttcct	tgtccatgga	cttgagcatg	gcacggaact	tgcgctataa	ggaaccacac	900
tcttgtagaa	tacgaagtct	gcatacttct	tgggtcgcc	ttgaattctt	ggcgattaca	960
ttcttgaata	tatcggggag	ttgtcgg				987

(2) INFORMATION FOR SEQ ID NO:1542

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 525 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...525
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1542

gatgccgagg	agcatgtgtc	tgatgccacc	caagctgtct	atthttggatc	gtagtcctga	60
caggcttgca	gtagtttttc	ttccgaagca	tatacatcgg	tgccataatg	ttttccggca	120
ggatgtcgat	atggctcgaga	aagtcctgcg	caatthggcc	agacagccta	agttctcgc	180
gaccgggtgga	tagtatcgaa	tacgggtgaag	gcaatcacgt	tgcggaagct	gagtccttcc	240
tcgctgtgtt	ttgtatcagt	ttgtcgtaga	cgatgaccgg	cgaattgcct	ccggcagagc	300
cagggtgtag	tatttggtgt	gtgcttgcca	ctcccgtata	tcctggctat	tttcggtggc	360
aatgacttct	gctgcttcgt	cgttgggtgcc	ggatatattg	gtcgggtatat	tctcgaagcc	420
gacgtagcag	ggtctcttcg	tagtattctg	cggacgggta	gtatcgtccg	gtatttcgga	480
tagagaaatc	tggacttang	ttcaatctca	tcttcttgct	gtttt		525

(2) INFORMATION FOR SEQ ID NO:1543

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 858 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...858

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1543

cggctacaag	cgggagatga	gcggtgatga	catcggtgtc	cgattctcgt	caactgcgat	60
cagggggaaa	agatctatgt	acgatcggcc	gtttcattgt	cagcgaagcc	aatgcgctct	120
ataatctgga	agcggagcaa	gaagagggtt	caaaagtgtc	ggagggaatc	cggccaaggc	180
tttctccgct	atacgctcgc	cgctatagag	cggtgggagg	aagccctcgg	tacggtggaa	240
gtggaggagg	cacaccggat	gaaaagacga	tattctatac	cgcactctat	caccgctgat	300
acatccgaat	atcctacaag	atgccaatgg	agaatatcct	atgtgggcag	tggcaaaacg	360
ggtaatacgg	ctcacgaccg	ctacaccgtg	tttctctttg	ggacacgtac	cgcaatgtac	420
accgcgtgct	ctgcctcctc	ttccggagaa	gcagttggat	atggtagcga	cactgatcga	480
catgtaccga	agagcgggtg	gctgccgaga	tgggagctgt	acggacagga	gaccctgaca	540
tggaggcgca	cccctcgctt	atcgctcatca	atgacacttg	gcaaagggcc	ttcgtgcttt	600
cgaacggcga	acggcctatg	aagccatgaa	aaaaaatctt	cttcggcagg	agcgacccat	660
ccgatccgtc	ctgacaacga	cgactactca	ccctcggtt	cgtacccgct	tcgcgaaaca	720
gtacgacaat	tccgttcgca	tgcgtggaa	tactatctgg	ccgactggaa	tctgtcccgg	780
tttgccacgc	acttgggcat	aaagaagacg	cagctctatt	cggaaacgcc	tcgtgggcta	840
cagacactat	tatataag					858

(2) INFORMATION FOR SEQ ID NO:1544

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1066 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...1066

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1544

cgctgctctt	gataagatcg	tgcacagttc	tgttttctcc	tcccgattct	ctcttttgcc	60
gactctccgg	cttcttttgt	taggttgtct	ttcccgaag	cgggtatcga	gtgtcgggg	120
ttgtggagga	ttcttacgtg	caagtcggtt	caaacaccct	gttttcaaaa	ctccccaact	180
ctgcctctgg	tctgctccgg	ttatagatat	gtgtcttcgg	attattatta	tgatggaccg	240
atgattttgt	gggatatgga	gttccggaag	ccaaatcgg	cgatgctttc	ccgaggagga	300
gaaaagctgct	cgggcagatg	cggtaaatga	agcagaacct	gaacgaagga	atccgggatt	360
caagaatcct	ccgtgcgtac	caatttcgct	gaactgcatt	ctttgagccg	gcattgctga	420
ccgatgaacg	gggcgaagtt	tttggctctt	cactctgccc	gagacactga	cgcgctggca	480
cctgctcctc	ttgcacatac	gaaggatatg	cggttgggca	tgaaagacga	aagcgtggag	540
tgcggaaaaga	ctttatgctt	acacccaatt	tgccacgatt	cctgagaagg	gtgacaaggg	600
tacggcttcg	gcttcgattc	ggaacgggag	cgagacgtgc	agcagggtct	cgtccgtatg	660
gaactgttcg	accctgctac	cgacaactat	tgggcggcga	gaggcttccg	ttctcgggtg	720
aagccgggtg	tacggtacgg	tgctgtttcc	gctcgatcct	gtctccggat	atgatgctct	780
gggttacgtt	tgtagccga	aagccatgac	ttcagcgatg	gagagcaaca	ctcatcgtgc	840
aactgccggc	tacggagcga	gtgggtggaga	ccataccgtt	gatctctacg	gcggacagtc	900
ccaaacgggtg	gatctggata	gtctattttc	catcgcaacg	gcagaccggc	tatgggtaca	960
atggcacttc	aggtggtgag	aatccgcttt	gggtggccgt	acaggccttt	gcccgtgatg	1020

actgatgtaa cgaggaagat gccgtttcgt ggcttcgctc tttatg

1066

(2) INFORMATION FOR SEQ ID NO:1545

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1101 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1101

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1545

tcgtatcctg	cttaccctcg	gtatccccgt	atacgactct	gacagcagac	caaatggctc	60
aatgatcaca	gccctgtcgt	ccgacaggca	ctgacgggct	cataggcagc	gatctgtacg	120
agaacggcat	actcaggcga	gacaggcggc	tacggctatc	ttctcctccg	gcgatctcct	180
cgaacaggta	aacgggtcat	acatccggaa	gtcaaaaaag	acttctgcc	atggcgttcg	240
gagtggaaatc	ggatctctgc	gccatcgaga	gtgccattct	tttcagctcg	ggatcaactc	300
cctgtgcgat	acggtaattc	gggtcgatgc	ccccgaaaag	atagacaaga	gcggncgatg	360
gctcgcgacg	gctcatcggc	agaaaccatg	agcagcggtat	gctcagccaa	gaaagagagc	420
agtcattggc	caaggccgga	gagaccatac	ggtgctcaac	gccccacccc	atctacttgt	480
ccctcaagtc	tcagaattat	agagacagta	cgaacaaaga	gacccaatcc	gcccgatcgc	540
tttaggggaa	taagacaggt	gcttccctgc	tctcctaccc	ctcgacagaa	cgaataactt	600
acttttgcag	acagtcaaaa	actgaaatac	aatatcataa	cagaaaaata	tggtgcaacc	660
catcctttcc	atatccggca	aatccgattg	tttcggctcg	tatcgcgcg	aaagaatacg	720
ctcatagtgc	aagcctcgac	acgaaacgta	gaacccccac	atacccatcg	ggaccgagta	780
gttccccctt	gcggatattt	ccattttacac	catcgaagat	gatgtccctc	tgcgagggtt	840
atggaaacga	tataccggaa	gaacgaaggc	aaacagctcg	atctcctgct	ctcacgaagg	900
acaacgactc	actacgtgct	ttcttcgggg	agtactgccc	gaatacgacg	tcgatagagt	960
atatccgagc	gatatacgca	gattatctct	tggtacaatc	ttctggtgga	caacggattt	1020
accactttct	ctcggataag	aaaccggcgg	aagaagagac	gacggaaaaa	gaatagcaac	1080
ttcgccggg	gatcgtctag	a				1101

(2) INFORMATION FOR SEQ ID NO:1546

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 690 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...690

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1546

cgaagtatcc	gagcaaagaa	gaaaatagaa	aaacgataaa	agtagaatag	catacgacaa	60
tggaatgca	gtatctgcaa	agatctgggg	gataaaaata	tcatgacaat	gcccccaagc	120
ataacaatag	aggcaacaat	aaaataaccc	acccctgaac	ggaaacaatc	tctcgtattg	180
tctctcgatc	attctcgcaa	tcggcttata	taatgtaa	gatatagccg	tagctatccc	240
catctagaca	agttgagaag	gcctaagaga	ttagtaattg	tagtattgag	tcctggagtt	300
cggcacctaa	ggcatcaata	aaaactctac	gtgagaagaa	agtaaaaata	taagaagccc	360
ataaaaacaaa	agtgagatta	tactatTTTT	tgactattgg	tcgttcgaga	agtctccacc	420
agatatttct	ttatagttga	taaataataa	gacattgcac	aaaacataaa	ggcattgctc	480
cacctcatat	gggaatctta	gagctaaggc	caggcttcac	ttgatagtaa	aaatagccct	540
cttatcctgc	atactgctaa	tagtccaagc	cataaccgga	tccaccaatc	acgatgttcg	600
tcatagcgat	gaagtctagc	tagcgacacg	aagagctacc	aggacatgat	gtcgtattgga	660
taagtcgatac	gggataatac	tgggcaacca				690

(2) INFORMATION FOR SEQ ID NO:1547

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 695 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...695

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1547

aacaatatga	cgggggtgga	atacagcttt	ggcaaatgct	gcaatcctat	tacggggatt	60
ccgtattcgg	attcgtgagc	aatagcggta	tcaagataac	cgcacggact	gcccgaatgc	120
gccgatatg	ttcagccgat	acggttacgc	atcatcgaag	ctcgttgag	cggtaaggga	180
tcgaccggat	acgaggtaca	cttcatgtca	taggacagga	caatctggcc	atcgtgacga	240
acatacttcg	gtcatcaata	aagaaccagg	cgtatcgctc	cgagcctatt	cgataattcg	300
aaggacaatc	tcttcgaagg	ggtgttcacg	gtcgaagtac	ccgtacctcg	acactatcca	360
tcctccttcg	caagatccgt	gctacgcatg	ggtcaagtcg	gccgaacgac	attgacagcc	420
ccttgcaagt	ctttagtagt	gagtacatgg	tctggatgat	gtgtatcgta	ttcttgagca	480
gaacggcttg	aagtccttag	tagtggagta	catggtttca	gacagaatag	cgtatatattc	540
tatcaatatc	gtgtaattgt	ataagcggat	aaggatatgc	gagaatcctg	ccaccggcag	600
gaaaaaagct	gcaggctatg	cgtttatcac	aggcctctca	aggaggtata	aaataaaaag	660
caatggctca	gagttagtta	atagggatta	cgacc			695

(2) INFORMATION FOR SEQ ID NO:1548

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 615 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...615

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1548

gaccatagta	tcctctcata	ggagaccata	gtatcctctc	ataggagaca	tagtatcctc	60
tcattgtgaga	ccatagtatc	ctctcatatg	agaccatata	tcctctcata	ggggaccata	120
gtatcctctt	gtatgagacc	atagtatctc	tcgtggaagt	tcattctttg	tatctcaggg	180
aaagaccggt	gagcagtgtg	tcgctgtcaa	gtnaacagag	agcagtgcc	gaatacgttg	240
ccaatgataa	gcatatcgac	ttggttcgaa	aatacattcg	ggctttccta	tatcattcgc	300
tggcatgacg	tcctgaatg	aaacctcttc	tcgtcggatg	atttccttgt	tgtgccatcg	360
ttttgtgtca	ttgagatcat	accataaaca	caaaaacaat	cggccgacac	actgtaaaat	420
gaatggataa	agtgcctgct	tttgccgaaa	ggtctcagaa	aagaaaaaaa	cacaaagagg	480
gcgcacggt	agatgcgcc	tctgcttttc	agtcgccct	atcttcaggg	gattatttag	540
cttgctattg	agcctttgca	acagagccat	tcatgacaac	aaccgatct	gctgcttcaa	600
gagtcctgccg	aaact					615

(2) INFORMATION FOR SEQ ID NO:1549

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 630 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...630

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1549

gtgctgttcg	gtcttgcca	tgaagtcctc	catatctacg	ttgcctcgcc	gtcgcaagct	60
accgtcaccg	tatcgtatcc	gcactggatg	gcactggcgg	attggtagcg	tgggcagaag	120
ccggcaggat	aaccagatgg	cggtgtcctg	tccgatgctg	ttcagatagc	cgcgaaatag	180
gagcaatccg	gtgtatcgcc	tgctgcaccg	gagttagggt	ggagcgaaag	tggcatcgaa	240
accgggataa	cggccaagta	acgttcgagg	ctttcgagca	tcctcggtgta	gcctccgtct	300
ggtctttcgg	agcatacggg	tgaatggcat	tgaactgcgg	catgagaggt	tgaacagctc	360

ggatgcgga	ttcagcttca	tcgtacaaga	accagcggaa	tcattggagt	tgccagtga	420
atgtccttgc	gttcgagggc	ttgatgtagc	gcattcagctc	cgtctcgggt	tggtagttgt	480
tgaatacgtc	tagtccagga	agttcgaggt	acgggcaaag	gcaccgtcga	aataccgttg	540
tcgatggcaa	tgtcctccga	gattgtctcc	tctttgccca	aaacggatag	aagatataga	600
gcagaacacc	gaggttcggg	cggcagtgta				630

(2) INFORMATION FOR SEQ ID NO:1550

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 964 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...964

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1550

gccaaagccg	ccgatattct	tttgcgtaga	ggctatattt	tttacaacct	ctgggcggat	60
ataaaggcta	tccgtacaag	taagtgtatc	ctggagagtt	tcgggacagg	tttctctact	120
tgctctctac	ccatagctct	tgttttctct	cctttacccc	gaatggatcg	tcctaagcct	180
tcataatatt	ttcgaagaca	gccattctct	gcttgtttgt	cggcaggcct	ttgtttgcgc	240
agagcatgtg	gactacgtcg	atccgctgat	cgggacgcta	agttcttttg	agctagtgcg	300
ggcaatacct	atccgggtgat	cggtttaccg	tgggggaatga	atactggaca	ccgatgaccg	360
gtgtacccgg	tgacggctgg	caatatacct	accggcacac	aagattcgcg	gattcaaaca	420
gaccaccaa	cccagtcctt	gatcaacgac	tacggccaat	tctcccttct	tccccttacg	480
gcaccgcaga	gccatcatcg	aacgactcca	tagctctgac	taaatggtgc	aagcaactct	540
ttcggacgaa	cagacctcgt	ggttctcgca	caaagcggag	acggcgaccc	atactattat	600
agtgtctatt	tggccgatta	cgacacacgc	gtggagaggc	tccgaccgag	cgtgcagcta	660
tcttttcgat	acgttattcc	ggcaatccga	aagtggctcc	ggtcgatggc	ttcgtcttga	720
tgcctttacc	ggtggtcgga	gattagcatc	gtggatcctc	acaccgtagt	gggcataatc	780
cgcagaatag	cggaggtgtg	ccggctaact	tcgcctgtta	tttcatacct	cagccgatac	840
tcctatggcc	gatgtcctgc	ttgagacaga	taccggcaag	tcgacgaagg	cacaagggca	900
tgggcagcct	gtcgcttcga	ttcgcaagaa	gtaccgtccg	ggtggcatct	tcttttatca	960
gtgt						964

(2) INFORMATION FOR SEQ ID NO:1551

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 991 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...991

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1551

ttcccccttat aacgcgggatg aggcaggcgc gtgtacggta agtcgaatgc tgatctat	60
gtgccgtact catgggtgga aaagggggat tgaccacgtg gtagaatctc cgacggcctg	120
aagtatgcgg tctgcctcgt agcgattctc tgtatctcta tctctcggaa gttctgtgcc	180
tgcttgcggt tgtccgcaaa cattcttcat gggagaagag atgccgatcg ttttcgcagg	240
gcacagtgtc tttccttttg gaacaagata ggctatctgc cgaatgctct tcaactat	300
gaaccgggtc gccggctatc aatcgtctgt ctatctcgtg caaggaagtt ctcccatgcc	360
gtagatcagg aggtcggcac ctgattgata gatataccgg ggagcaattt gtccctgcaa	420
tagtcgtaat gcgtcagccg gggagagaag cttcgatccc cccgacaatg accggtacat	480
ccggaaacag tctttcagta tgcgggtgta aacgatgggt gggtagtcgg gacgcata	540
gaacgtctgt ccggtgtgta agcgtcttcg ctgcggagac ggcgattgcg gtgtatttat	600
tcaccatcga atccatcgct cctgccgaaa ctccgaaaac aagcgaggac gtcccaattt	660
gcggaagtcc cgaagatcgt cgcgccgttc ggttggggaa cgatagccac acgaagccct	720
tcggcttcta aaattttcct acgacggcag ctccgaagga cgggtgatcc acataagcat	780
ctccctaaag agaatgacat ccgcttcgtc ccaccccttg gcctccattt ctttttgagg	840
gtaggtaacc aatctgtcag gggatgatgc tttgccatcg gagcagtcgg tgatagcagc	900
cttatcgagc tgaggctttt cccggaaaag acgaatagtg cagatccgga accggacatt	960
gcagcgtaca aagcccccga cgatagagca t	991

(2) INFORMATION FOR SEQ ID NO:1552

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 756 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...756

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1552

gtgtcggaac agctaagaga cgggatagcg ttcttcgccc gaaagtaccg cacatgaaat	60
acctggccta tttccaagcc tataccaata cctatggaag caagccgaga tcatccgtaa	120
atacgaagag gctctgaact actacgagta gtaggcatta ttataggtag cagaccggac	180
tgcatgccgg attctctttg tcctacttaa aggatttgtc ggaaagagta ttcgttctcg	240
tggaaatggt gtagagagta cactggatgc cactcttcgg cgagtgaatc gtggcacctc	300
tggtcggata gtatggcagc tatcgagcga acggctaaga ccgattgccg atagggtgtgc	360
atctgatcct cgggctgccg ggggaaagca gaaagatata ctacggcacg cggacaagat	420
atcggcattg cccgtcacta cctgaaattg catcaactgc aaattatccg cggtagcgct	480
atggccaaag atatgcagag agtccctcgg actttcattt ttactccgag gaggaatatt	540
cgatctgtgt cttgatttca tcgaacgcct gcgtcctgat attgtgctga gcgtttcgt	600

tcgcagtctc	cggccgaact	tctcctgatg	ccgaaatgga	ttgaagaatc	acgagttcac	660
acacctgata	cgtcgtcgca	tttcaaaacg	cgatatcaga	cagggacgga	ctggaaagat	720
aattcccttt	gctattctac	aggaagaaac	cggtgt			756

(2) INFORMATION FOR SEQ ID NO:1553

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1349 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1349

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1553

ggctgataga	gcgacaatta	ttcgggcacg	tacagataga	ggaacgaggg	agaatagaaa	60
acctcgtaca	tgatgggaca	ttcgtccatt	gccagcacca	aatctacgct	taaatacacag	120
gccaaaagat	tgcaaaggat	atggagagct	gataaagaaa	tatacgggtgt	ccgttgtaaa	180
tagaagaggn	tttattaaga	tccacaatag	gattgtgtag	ttttgcatcc	gtcataaggt	240
ctccttacgt	catgaacaga	ttaagggaag	cattaaaaga	aaggggaatt	actcaacgga	300
gctttcaact	cgcttgggca	agagctttta	tatgggtcaat	ctcatgttgc	caacaagcat	360
cagccctcaa	ttcctaccct	cttccaaata	gcgagatttt	ggatatggac	gtaagagatc	420
tcttggtatc	taacaagcaa	caaacaaata	atgaaactga	tagatatanc	aaaaggatcg	480
gaacacgacc	cagtcttttc	tcagacgaaa	agattgccac	attagagtct	cgtatccctt	540
aaaggaaggg	aaaaaagggc	ctatttccta	tctttcctgt	ctcgttcgaa	gcaggagatt	600
aagcttaccc	ccgaggagggt	agtgcgtcag	ttatatcaat	ggtgcttacg	gaagactttg	660
gttatccact	ttctcgcata	aaattgagta	tgaggtaacc	ttcggtcggg	aaaagaagcg	720
agccgacatc	gtcattttcg	caagcaacaa	acagatagcc	cttatatcat	cattgaggtc	780
aagagccgaa	actcaaggat	ggtaaagagc	aactcaaaaag	ctattgcaat	gccctggagc	840
acccatcggt	gtatggagta	atggcaagag	catatcctat	tacaccgtaa	agaccctaac	900
tattttgaag	acatcagcaa	tatcccgaga	gtgatcaaaa	actttcagat	attcctttcg	960
agcgttggac	gatagcagac	ttatagaaaa	agataagctc	attagcgaac	gcaagtcgct	1020
caaagaccta	tcctcgaaat	ggaagacgaa	gtgttggcag	gagctggggg	ggatgtgttg	1080
aagagggtatt	caaacttatc	ttcaccaaac	tttttgatga	gatggaggcg	gacgcaacaa	1140
tgagcgcaac	ctcgagtttc	gcaactatgg	cgatacgaga	ccgaactcaa	agagcgcata	1200
caaaatcttt	ttgataaagc	tcgtgcaaat	gggaagggtgt	attcagcccc	gatgccaaga	1260
tacagctgac	gccccctacc	tttctgtctg	cgtagcatcg	ttgcaggacg	ttaagctctt	1320
caatccaatc	ttgatgtggg	gggcgaagc				1349

(2) INFORMATION FOR SEQ ID NO:1554

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 496 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...496

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1554

ccggcgtata	tgcctacccc	ggtactccct	ctacggaaat	caccgagcaa	tccaaaactc	60
tcggatggct	aaggaaagaa	atgtccatcg	ggaatggggg	caaacgaaaa	aaccgctatg	120
gaatcaagct	ctcggcatgt	cctacgcggc	aagcgcgctc	tcgtatgtat	gaagcatgtg	180
gggatgaacg	tagcagagac	tgctttatga	atgctgccat	caccggtgcg	aatggcggta	240
tggtgtcggt	gctgccgacg	acccctctat	gcactcgtct	tcaaaatgaa	caagcttttc	300
gcgtgtatgg	ccagttngcc	atgattcctg	tgatggagcc	atcaaccaac	aggaagctta	360
tgacatgacg	cgctttgcct	tcgatctatc	cgacgtttgg	gtacaccggt	catgatgcgt	420
attacgactc	gtctcgctca	cctcgtgccg	gtgtcgttca	gaccgagccg	atcggagaga	480
ncgaattgca	ctgccg					496

(2) INFORMATION FOR SEQ ID NO:1555

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1418 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1418

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1555

aggagttcat	gaccacgcca	tgttttcttc	atccttgaac	tggagctgag	cagaagaaga	60
ccgatgcttt	tcttccgctg	tacaacgagc	tggacaccac	gctacgagct	gtggaaagac	120
gttcggcaaa	agcgtgctct	gatggatgaa	aagccgaatt	gacggatgcc	gacatggagc	180
tgatcatcaa	taagagttgg	acaataaatt	gcagaggcac	ggttggaaaa	agagtactac	240
tataattcaa	acgagtgcgt	ccgatgcgaa	aagtgatggc	tctgaaagtt	gcaggcggaa	300
atttgcccggt	ctgtttctta	agagcagtta	tgactaatcc	cttttatact	acttttggtg	360
gcgtttaaca	tgataatttt	ggtaaaatga	gttttcagca	aataaatttg	tgacctgtag	420
ctacgacttg	tatgtagggt	tgacagaggag	aaagaattga	tggagcaggc	cacggccgaa	480
aggccgttgt	ctatatacat	ggtatgggta	tgatgttgcc	cgagttcgaa	aagcatttgt	540
cgggctggct	gtgggtgaca	aattcgactt	cgagcttaag	agcgaagagc	ctatggcgaa	600
cgtcagggaag	atgccgtatt	ggagttgccc	aaggatactt	caaagacgaa	gaaggccgat	660
tcgactcttc	catcgtctac	gaaggcatac	cgtgccgatg	cgcgatgccg	aaggtaatac	720
cttgcaaggt	tctgtctgga	agtagagac	gatgtagtgg	taatggactt	caatcatcct	780
ttggcgggtga	gaatcttcat	ttcatcggag	agatcatcga	agagcgtgaa	gcgcggcaga	840

agagatcgaa	cagttctttg	gaggccactc	cggctgtggt	tgggttgtag	ctgcgaaagt	900
gaatcatcag	atggttgcaa	ctgtggcagc	gctgtggctg	tcactgatcg	ggacaaagca	960
ataaaacgga	gaaaagctcc	aaccgttgtc	tctaaaaagc	aatggcttgg	agctttttta	1020
tttctcagtt	ctgctctttg	tcagaaactc	tgtctgaagt	tgagaatgtc	acaaacacgc	1080
tattataaat	cagatgaata	caataggtaa	gttattccgg	ctgactaatt	cggagaatcc	1140
cacggcaaag	ctatcggagg	tgtcatcgac	ggctgtcggc	agggtttttt	gtagacatgg	1200
aaaccatcga	gcgagagtta	cttcgcgtcg	cccagggcag	tcacattata	cttctccccg	1260
gcaggagagt	gacaggtaca	gtttatctcc	ggcctatttc	ggggagaaac	caccggtgct	1320
cctttgcttt	catgatagac	aataaagatg	tacgttctgc	ttgactacga	catctcagct	1380
tcattctttc	gtcccggaca	tgccgactat	acatattt			1418

(2) INFORMATION FOR SEQ ID NO:1556

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 649 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...649
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1556

gtatagttcg	ttcggttgta	aatatcgccc	atcggtatcg	tcttgacaga	aattcgagcg	60
tatccactct	ggccgaaacc	ggatccgaag	gaggctggta	gaacctccga	tcggagacag	120
atcatcatcg	caggctaccg	tgaggaggcc	attaacgaaa	aaacaagaag	aaggatatctc	180
ttcataataa	tggtgatcgt	tgggtttgcg	tggaaaggca	gataattaac	gctaatacgct	240
gcctgatatt	gttttttacg	gcgcagtcgg	gcagaatgag	acaaatcagt	tggcgtcaaa	300
agatcgctat	agaagttatc	gaaagcttct	tcatagtcct	cttcccttgg	tatggggagga	360
aagccttccc	ctccaaagag	gatatatagt	cgtcagctcc	ggtgctatgg	tctccgatcc	420
ctgaatgaca	ccgtcggcat	acggatggcc	agacggttca	aggccaaata	gtcggacgac	480
tgctccatta	ggacaggtca	tcgggcgtga	tcttgctgaa	tccgagctta	ccgaaagagg	540
tcttccggga	tcactccctg	tccggcatca	tcgtagacgg	agtagaccct	tttgcttttg	600
caggcaagga	tcgtccgata	catcttcttc	agatccagca	gccaacgcc		649

(2) INFORMATION FOR SEQ ID NO:1557

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1005 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1005

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1557

gcaaggagca	gtttttcttt	cattgttatt	tccccgcct	gtagcatata	tacagagtca	60
gcacttgtcc	ggtaccgaag	cggccgatta	gcctgcagat	ttcagcacct	tgttcaccag	120
agcattttct	tgatagtagg	aggcatatac	gatattgtccg	ccagggtggt	cgggagctta	180
tccacaaacc	ctttgcagca	ggttgccgcc	ttttctgaag	atggtttctt	ttcatgtcat	240
tgatgcgtct	attatgctta	atagctgtt	tattagggtt	tctcacctat	tcgatatctt	300
tgtgtctgtg	gcaggaggga	acgaatcttc	caaccattgg	cttaacaaca	acaaagaaac	360
agcttattat	gaatagtgtg	caatttcgcg	aaaactttctg	agtctgcaag	acaatatgcg	420
caattttgcc	ctgactctga	cgccaatcgg	gatgatgcag	aggatttgct	ccaagatata	480
actctccgtg	gcttcataac	gaggacaagt	tcgttgataa	tgtcaacttc	aaaggctggt	540
gctcactgtc	atgcgaaata	tcttcatcaa	caactatcat	aagttggtcg	ctcacaaacg	600
gttatcgatc	ccaacagcga	tccgtacaat	gtacctccct	gaatgaggga	ggagaggata	660
cgcccgatgg	cactatgacc	atcaaaagat	aacggcggcc	attgcatcgc	tgaatgagac	720
tctcaagcag	ccatttccat	gtacgtgagc	ggatataaat	acaatgaaat	atccgagact	780
cttgaatccc	tctcggcacg	gtgaagagcc	gtatatctt	tgccagacag	gaatccagca	840
gcaactcaag	gacatgagat	aacagcctgc	tcagcacaca	cacctccatc	gacaacagta	900
tcaaaaaagg	gtattcggtta	aagcctctga	agaccgataa	cgaataccct	tttttgttgc	960
aacagctcgc	taaggcgaga	gttcataact	gaaaaagaga	cataa		1005

(2) INFORMATION FOR SEQ ID NO:1558

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 693 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...693

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1558

gcctccgatg	tggtgaatgc	cgtgatcatg	gctcccactc	gcgaactggg	cagcaaatag	60
atcagcaagt	ggaagggttt	tcttacttca	tgccggtagc	gccgtagcca	tatacggggg	120
tacggacggg	gtggcatggg	agcagcacgt	cgggggatgg	ctatgggggc	ggacatcgtg	180
atagccacac	cgggactctg	atctcgcac	tgaatctcgg	ttcggccgac	ctctcccacg	240
tctccacttc	gtattggacg	aagccgaccg	catgctggac	atgggtttct	tcgagacntc	300
atgcagatnt	ncaagcagct	gccgagtctg	tgccagacgg	ttagttttcg	gctacgatgc	360
cccccaagat	ccgaagctg	gcagcatcta	tttaagggat	ccgatagagg	tggagatcgc	420
catcagccgt	ccgcccgaga	gatcatgcag	agcgcataca	tttgtcacga	agcgcagaag	480
ctgccgatac	ccgcaagctc	ttcgagcagt	cggctccgaa	gcgtaccatt	attttcgccc	540
ggccaagctc	aaagtgcgtg	agctgacttc	cactctccgc	aagatgggtt	caatgtggcc	600
gatatgcact	ccgatctgga	gcagtcccag	cgcgaacggg	gatgcgcgac	ttcaaaaacc	660

gctatgtgga tgtacttgtg gccactacat cgt

693

(2) INFORMATION FOR SEQ ID NO:1559

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 627 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...627

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1559

gggccggtga	caagcgtaac	cgaagccccc	aattcggcca	aacgttctgt	atgcagaagc	60
ccatccttcc	ggaagagtag	ttgccgagaa	aacgtacaga	tcgagtttct	cgtatgtagg	120
gccggctgta	accaatgctc	tcttcccagg	aggggcttac	aatcgttctc	cttgaaaaaa	180
gcctccaata	tctccaaatg	cactccggct	cttccatccg	cccctttcct	accaaataac	240
tggccattcg	ccttcacccg	gctctatgat	atgattgcca	taagagcgta	gtattccata	300
ttgtgctgcg	tactcggatg	tcggaacatg	tccaaatcca	tagcggagcc	acgaatacgg	360
gagccttggc	ggaaaggtaa	gtggttacca	actattgtcg	gctatgccat	gtgccatctt	420
gcctatcgta	gaggctgtgg	cggagctatc	agcatagcat	ccgcccagag	actgagatcc	480
acatggctgt	ccatgtacca	tcccgtccgg	agaaaaattc	gctgatgaca	ggcttggaa	540
cagagccgag	aggggtgatg	gagtaatgaa	ctccttgccg	gcaggagtat	gactatttgc	600
acttcagcct	cctttttgat	gagcagc				627

(2) INFORMATION FOR SEQ ID NO:1560

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 579 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...579

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1560,

ggctgtgaag	tttatgaata	gattcgggga	agaattgata	agaggtgtcg	ctggccgaag	60
tcatatacac	gctacttgct	gccattgaa	gggttttctt	ggagaaagtc	gggaaaaagg	120
ggattcccat	cgaactccgt	cctgcatcgt	tcggtatcag	ggtgcatctg	cttcgattcc	180
gaatatagcc	ctccttgata	cacatagtc	cctaaagctt	tttaacgtca	gttcgacgtc	240
tatatataac	gtgagttcga	tataagcgtt	atgggtgccga	ctctcataag	tattgtcgat	300
caatcctttg	ttgggttaac	tataaccgat	cagaaaatga	aaggaaaaaa	tttgacgtct	360
catcggatgt	cgaagtctcc	cgaagctgaa	attctcaacc	gagaaatgaa	atacgttgac	420
aaacagcata	ttgcatgttt	tcttggatcg	aatccgcatt	gttttatagc	cgttcggaac	480
atactccgaa	gggggtcgag	ctacgcccta	cagcgactcg	ggctacgccg	tanagcgta	540
gagctgcgct	ctacggctct	ttcgagctac	gctgaaggc			579

(2) INFORMATION FOR SEQ ID NO:1561

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 680 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...680

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1561

tctaaaagga	tataccgatg	aagatagtaa	tatgcggaca	gctatgcagt	ctacccggcg	60
atttggactg	gagcggatc	gaagaaatgg	gcgaatgctg	ttctacgaat	ataccggtcc	120
ggaggatttg	actctgcgtg	ctgtcgagct	gaaatagtc	ttaccaacaa	gactcctgtg	180
actgcggccg	acatggaaag	atgccccacc	tacgttacat	cggactgatg	attacaggcc	240
ttaattttata	gatatggatg	ctgctcgtca	gcgtggatc	accataacga	acatccccac	300
tatagcacag	aatcagtagc	ccaaatggca	atctcgcata	tacgcacata	accatgccga	360
tcggagaact	ttcccggcag	gtgaaagatg	gtgctggcag	agcaattacg	aacaaatctc	420
tcgcaatact	tatcagatag	actgagcgga	ctgacgatgg	ctatcgtggg	acttggggca	480
ataggtacac	tgtagcggaa	atggcacgtg	gattcggcat	gaagattttg	gcacatacac	540
caaattctcca	atcgagttgc	cttcttatat	agaaaagtcc	cgatagccgg	agaagctttt	600
ctcttcgggc	tgatgtgctg	agtctgcatt	ggccgctaca	gtgcaaacc	aaagatgggt	660
cggctgatta	gctggccttg					680

(2) INFORMATION FOR SEQ ID NO:1562

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 594 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...594

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1562

aagagataaa	gcaaattgac	attgcttggt	accagcaaag	catcatacct	tcttcttcca	60
ttgctatacg	tacacgctct	tggcgtactt	ggagatctcc	ttcaaggctg	caggtgctaa	120
tttgatcata	atattttgag	attatttgat	taacgaaaca	aaagtactga	atagcatatt	180
cgcaagtcac	gaataacacg	atttatcagt	acagaaagct	gtcttatccg	attatagaaa	240
gtcttccgat	ttcccgat	gttcttctta	tttgcgaaaa	tcccgtgcaa	tagtccatac	300
agtgtgtcta	tgcatttgct	ctctttactc	ctgatgcact	ttgaatctac	tcgaatgagc	360
ctcaaaagcc	tgctccggcg	ataactctcc	aatccggcaa	aatttattcg	accgacgaag	420
ctgtgtagca	ccactcctcg	atctgccatg	atccgttgcc	aatcgctgta	tggactatct	480
ccccttcaga	acaataccta	atcggtttcg	gcaatccgtt	ggctatactc	gtctgtgtac	540
catggcatca	atacttaaca	atcgtgccac	ttaactctaa	ctatccagct	actc	594

(2) INFORMATION FOR SEQ ID NO:1563

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 726 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...726

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1563

gcgatgcttt	cgaaagattg	cctcagccgg	agccgattcg	cagacggctg	tacgcgtcgg	60
ctcctctcct	gttcatgagg	agcgaatgg	tcatcagcga	taggagattt	gtgcgtgggc	120
gacacgggtg	cacatgcgcg	cttcggatag	gaatcatcga	atccctcgaa	ggagaaggcg	180
ataatgccaa	ggctgagttt	cgtttcagca	ggtaggacgc	aaacgtctgt	tacttcgggt	240
tgccagctat	ccaaagtggg	aaaagattcg	atctgaacta	cagtgttctg	tactaaaaac	300
gtttaggaca	ctattgggtg	tacaccgggt	tgctctttga	ggtttattgc	ttcgtggggg	360
tatatctccc	aaaagcaatc	ctttcttctt	attggtcaaa	accatgagac	tgactcagcc	420
atccatgagg	tgctctaagt	taaagctaag	tgctgaacgc	ccttgagggt	agttctgtgt	480
acaaagatcg	taaccgatat	cgaatcagtc	aataaccaa	gatgaatcat	ccgagtataa	540
acacgagggc	gatgttcac	ataaccgggt	ccccaaangt	ccagctccga	ttgtagagtg	600
gagattctat	tcctaagagt	ccattaatag	catagggagg	acatcggtca	tgatgcgtcg	660
ctcctaattg	attgcaatcg	aggatagctc	cggtattgg	cttcatagat	ggactgagat	720
agataa						726

(2) INFORMATION FOR SEQ ID NO:1564

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 2259 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...2259

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1564

ggcgtttaga	ggccgattta	gaccataata	tcctgccgga	gggcgtccac	aagctgctgg	60
ctcctatgcg	gaaatatgcc	ggcgtaagcc	attctttgcc	aaaagcgttt	cgatcagaca	120
gtagtatttc	acagcatctt	cagttgtcga	atgcctccgg	acagtttgat	accacgtact	180
tcgccaaaaa	gtccgtgtac	tgtttcagca	ccttgccacat	cgtataggct	gcttcaaggc	240
tcgctcgggg	tagcctttgc	ctgtggatgt	ctttacaaaa	tgtgcaccgg	agaaagggag	300
agaatcgtag	cgcgacggat	attctccggt	gttttcaatg	cgctgtctcc	agtatcactt	360
tgacggtagc	tccctttgct	gctgctattt	gccttcgatt	tccgtggccg	ctgcttcata	420
gtccccactt	aggaacttac	catattgagt	actatgtcta	tttcatctgc	tccatcgctt	480
acggccagtg	cgtttcggcc	aacttaactt	cgataaagct	ctgtgaagcg	gggaaacagc	540
actgacgctg	gccactttca	cgttttcggc	tgtgagcggt	tctctcacgt	ggagacgaag	600
ttgggggtata	cgcagatcgc	cgctacggat	ggaatcgggg	atctgtgtcc	tcgaagtcac	660
tgacgctctc	ggtaaacttt	gtgatgactc	ctccgaatcc	gtggcggtca	ggctgggtcag	720
atcgatgacg	ccatgaggaa	tttcttcggt	tccggagtgt	cgaatcgtga	atagtgtacc	780
cgtatatttg	atcggttttc	agtaaaattc	tctcttctga	ctcggccgga	tcgactgagc	840
gaaggccatt	tcgtatttat	ttgctgccat	tgttggttag	ttcgtatttt	gttgatgtct	900
ttctttgtct	ctaaccggtt	tcttctcgat	atcttatgga	atgcggtggt	cagatccaca	960
ccggtttggg	tggccaggca	agcagaaccc	acagaacatc	agccatttcg	tcggccaaat	1020
ctttgtctcg	tccgctttcc	ttttcacttt	gttctccgta	ccgtcgtgcg	atgatacggc	1080
tactttctct	acctcttcgg	tcaaggatgg	ccatggtggg	tagctcatga	agtatctgat	1140
acccagtgtc	ttaatccatt	ggtcgacact	cttttggcct	ctcttagtgt	gatgtcggac	1200
atggctctac	tccttgttgt	gggtgcaatc	aatatgggta	ccggcccac	gttcaccaat	1260
gcgacctgca	tgtcgctccg	aatacgcctt	gtctgacagc	ttttcccagt	tttgccggaca	1320
agcgttgacg	aaactctcgt	agagagggat	ggctatctca	ggacgggaag	ctttatgtag	1380
ctgggtctgt	tccctttccg	ggtcgatccc	atgagtgtaa	atggcttacg	accaagcgtt	1440
ctccattgat	gtctttgacg	gaaaaggttca	cacccttcg	ctgtcatcga	agatacgcag	1500
gttggagatc	ttggaagtta	tagttcgatg	tcgctctctc	cgtctcggtc	ttctatgcct	1560
acgagaatag	cactccctga	cctatacggc	tgtgtaatgc	tcctctgatg	ctgacgggtg	1620
ctccgttact	ctttgtatta	ctactctcat	cgtttcttat	ttcttttgag	tccttcgtat	1680
aatagtttcc	ctttgttccg	gccgataaga	gcactagctc	ttcctcttct	gcggagcgtta	1740
ttcgctttac	gcttttgaaa	tggcgagcag	atcttctttt	gttttcttac	cgatgccttt	1800
gatattgtcc	agtcgctctg	aatttgtttc	ttacttcgta	catcgcggtg	gaacccgatc	1860
ccaagcgggt	tgcttcgctg	cgtaggtggt	gtatgacctt	gagcgtttcg	ctttcttgctc	1920
caaaatcagc	ggaacggggg	ccttcgggaa	aaagatttcc	ccagacgttc	ggccaatcct	1980
atgatgggta	tcttgccgat	gagccccagt	tatctaattg	ttcgtacgct	gcgctaagct	2040
gtcctttccc	tccatctaga	cgatcaggtc	gggtaggggt	aagttctctt	ccgtcagacg	2100
ggtgtaagcc	gactgatgat	ttctctcatg	gaggcggaag	cggttcggccc	ttcgacgttt	2160
tcacgtgaaa	ctttcggtta	tcctttttgc	tcggtttccc	catttgaaaa	caacgcaggc	2220
tgccaccgga	ctcgtaccct	gtatatcga	ggtgcgaag			2259

(2) INFORMATION FOR SEQ ID NO:1565

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 604 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...604

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1565

aggaagatat	ccgagcaatt	tcgatgccaa	ctcaaagggg	agcagcgagt	gactaccaga	60
tcatcatcac	gacagaagtg	cttgcgagg	gtatcaacta	caccgtgcc	acagcatact	120
caactacgat	actccatgga	atgctaccgc	ctgatgcaac	gcatcgggcg	agtcaaccgc	180
atcggtccc	aagctcctgc	gtctatgtct	ataacttcat	gccgagtgca	gagggagatg	240
ccgagtcaat	ctcgtcaaga	aagcatatac	caagctacag	tctttccaca	cactttcggt	300
gaggatagtc	aaatcttcag	tgaagaagaa	gaggttgtac	acccgagctg	aaaaccaga	360
tcgagggcgc	ggagtctgcc	ctagagcaat	actctacgag	ctcaaacct	acaaggcgca	420
gcatccagaa	cgatacgact	aatcgctcgg	cagagcgaag	ggctagagtt	ggctgtatct	480
gagacagagg	gcaagctctc	ttcgtcgtcc	gcagcccaa	gtgccctgcg	atgttcgttg	540
ctatgatgcc	ctagaggata	agtgtcttat	gctctctgcc	ccacagatta	cgaggctttc	600
cgct						604

(A) NAME/KEY: misc_feature
(B) LOCATION 1...2521

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:451

cacataggag	ttattcgtac	atattgtccga	cgagggatga	gccgaaaaaa	atgaatccaa	60
caacagtgac	tcagcaatta	caaaaaacat	atcaggcttc	ggggatggac	tgctgagcga	120
ggcgttcggc	ctcgtccgtg	catcgggtccc	tcgcagcaat	cgatttcct	cacacgcac	180
gacgatctgg	agaacgctat	cggcagctct	tgtcatactt	cgcccaaggt	gtgaaagacg	240
aaaaacaggc	cgagatgctc	ctctacctca	agcgcaact	cataggtctg	gcagtgaagt	300
gcacgcgaa	tccgtgggtg	cacagggcac	ggggcttttc	tacatcgctt	tcgttaccgc	360
cgcagcatcg	gtttcgaaa	ccttgtcacc	ttctggagca	ggctgagaca	agcactgtcc	420
gcaagcagtt	cgacgaattg	gacggctcat	attcgatagc	ttgtggacgg	ccgatgctct	480
gacggacgaa	aggctgctgc	cctctcgcat	gccggcgaat	acattcgctt	cgtggcggct	540
cggccttgac	aatggctctg	caacaacagt	ggcactcgaa	aaagctctct	tcctgctcga	600
agagctggct	cgccccgaca	ttacagccga	ctatcgcccc	gcctgctggt	cggagtcggt	660
ctcacccttc	gttcctatcc	ccaccaaccc	gactctatta	taatgagatc	gcattgcgac	720
tggaagccgt	caatgacata	tccctttgga	accgaccctt	gagatgcttt	cgatccgctt	780
cctcttgcc	gcgaaacaga	gtccatcacc	aagcatttgc	aaaccgagan	ctttaagcga	840
tatacagaag	atagcccccg	acctgcgcaa	attcggtag	gggataccga	gtccatacag	900
gagacaggca	atccggagtg	gatggaggag	cggagaagag	cggctcggga	gacaaaatca	960
gggagttctc	ggagttgcag	tcgaaggagc	cgatgtaatg	cactcttcgt	tcatagaactt	1020
gaagggaaga	gctttttccg	cgagatgcac	aactggtttc	tgcttttcga	tgccgccccca	1080
gccggatagc	tccactgctc	gaagagaatg	ctgtgctcaa	gcagctttgg	aggcgatagg	1140
cccacagctt	tgcaactcgg	accgctactc	tttcatgttt	cgatggaaaag	cctccctgct	1200
gcacttcgag	gttcggccat	gggagcgtag	gcggtgaact	ggatgcactc	aaagagcaga	1260
taaagcagga	tgtacggctg	gcgaaaccgg	caaattggac	acggccatca	agagctatct	1320
gcagatctgt	acagattcta	taagggtatg	gaacggaaga	acgaatttga	cgtattttcc	1380
tctcgcccat	cccaccggat	ctgcctgtgc	tcgatcgcta	ttctacaagc	gtgatacgt	1440
gctgcatacg	gccgaatttc	tcttcgcgcg	aagcattacg	atcgggcagc	gaagcttgct	1500
ggccgatttg	gctgaaggga	agaaagtgcc	acggatacca	ctctgcacca	aaagctgggt	1560
ttctccctca	gcagcagggc	cttttcgccc	aagctttggc	tgcatattcg	cgtgccgact	1620
gatcgatacg	gagaacgaat	ggctgctcaa	gcgtatggct	cactgtaccg	ccagctgtgc	1680
cgctcgcccg	aagcggccga	aatatatgaa	cgactttcga	gcgcaatccg	cacgaagcga	1740
ctctactcct	gcagcgagga	aatggctcgt	cgaggacagc	cgatacga	aatgctctaca	1800
atgcttcttc	cgaatgagtt	cagtgtggac	gatgcttcca	aggctcgtcg	tcccatcgct	1860
tgtgcctctt	cctcaccggc	cagtacgaac	gtgccggcga	ttactatcgc	acatactgga	1920
atccgacgat	ctctcgactt	tcaccgatcg	gctcaatgcc	ggcatacgtc	tttggctatg	1980
gggcagatcc	ctgttcgat	cgaccattac	ttgcgggatt	gaagctcact	ccgacgggaa	2040
agatgaattt	ctcgcagcta	tacggcagac	ataccggttc	ttctcaaagc	cggtatcgag	2100
gatgccgcat	caggctcatt	ccggaagtat	tgaggctaca	cccgaactaag	ggaattctaa	2160
tgtttcatct	cacaaacctc	catcaatgag	taaaaaattt	gttttgcaat	cagtattatg	2220
gcaatgtctc	cagcatgtaa	cggcagccgt	aaagagatgc	caacctctcc	gacaatcctc	2280
tgctgcaatc	gagtgtctc	ttctggaagc	acccgaattc	gacaaaatca	aaaccgaaca	2340
cttcctgcct	gcttcgaagc	cggcatggag	cagcagttgg	ccgagatcga	ttcgatcggt	2400
acaactccga	agctcccact	ttcgagaata	cgctcgtagc	catggaacgt	cgggacagac	2460
actcaaactg	gtttccaatg	tcttcttcgg	gtctcacgga	gccaatacga	acgatgaact	2520
a						2521

(2) INFORMATION FOR SEQ ID NO:452

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 1552 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1552

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:452

ggaggtttgg	gctcttgaag	catttgagc	ttcgcatatc	ttgcaagaat	tcttactgtg	60
aaatctgacg	atgttggttg	acgttcaaag	gcatacgagc	gatagtcaaa	ggagatccga	120
tgccctacacc	gggtattccg	gagtcgctaa	cgtgctattg	catgaattga	aaggccttgg	180
tttaagtttt	tctttgacta	acttctaacc	gagagtctgt	acaattattt	ttgccttcat	240
ccattctatt	caagcaaaagt	gaactatggc	ttttagaaaa	gaaaataaga	taaaaaacaac	300
ttctcgaaga	ttcgtatcac	cttggcttct	cctgaagaga	ttctgagaac	tcattcggag	360
aagtattgaa	gccggagacg	atcaattatc	gtcctacaag	ccggaacgaa	gatggcctat	420
tctgtgaacg	catcttccgg	tcggttnaag	gatttttgaa	tggtcactgt	gggcaaatac	480
aagcgtattc	ataccgtggt	atcgtatgtg	atcgtctgtg	agtcgaggtg	acggaaaaga	540
agttcgccgt	gagcgtatgg	ggcacatcca	tttggtcgta	cctgttgcca	tatttggtat	600
ttccgttctc	ttccgaataa	gatcggctat	ttattagact	acctaccaag	aagttggatg	660
ccatcattta	ctatgaacgc	tacgttttat	tcaaccgggt	gttgccgaag	ggttgagtca	720
acttgatcta	ttgtcgagga	agaatacctc	gacaagcctg	atgaaataga	gcgcactcac	780
aaggcaacca	aaatttggag	gataccaatc	cggacaaatt	tattgccaaa	attgggcaga	840
ggctatttat	gatcttctat	gtcgtgtgga	tctggattct	attcctacga	attgcgagat	900
cgtgccataa	cagatggttc	gcagcaacgt	aaacagaagc	acttaaactg	cttcaagtcg	960
ttgaaagttt	ccgtgcatcc	aagggtgtgaa	tcgtcctgag	tggatgggta	tgaaagtgat	1020
tncggttatc	cgccggatct	tcgtccctta	gttccttttg	atgggtggacg	tttcgctatt	1080
ccgatctgaa	cgacttgtac	cgtcgcgtta	ttatccgtaa	caaccgttca	aacgattgat	1140
cgagatcaaa	gctcctgaag	ttatctttacg	caatgaaagc	gcattgctaca	ggaagcggtt	1200
gactcccttt	tcgacaactc	gcggagtcaa	gtgcggttaa	gtctgacaac	aatcgctcctt	1260
tgaaatccct	ttctatagtc	tcaaaggcaa	acaaggctcg	ttccgtcaga	acttgcttgg	1320
taacgtgtcg	attattctgc	tcgttccggt	atcggttggtg	gtccggagct	tagatgcatg	1380
agtgcggact	tccgaaagac	atggcagccc	gaactctaca	acccttcac	attcgcaagt	1440
tgattgagcg	tggcatagt	aagaccagtc	agagtgccaa	gaagattgta	gaccgtaaag	1500
agcctgttat	ctgggatatt	tggagtacgt	gatgaaaggg	acatccggtc	ct	1552

(2) INFORMATION FOR SEQ ID NO:453

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1419 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1419

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:453 ;

gatccccgtg	tgccaattag	tcaatagaaa	agcttccccg	aaacatccaa	gtcggccacc	60
gggttgaata	tgcccaaata	gagtgtgaagc	ggagtcatac	agccataaag	agaaagatga	120
agcgagctgc	catgcgtctg	tagataccat	caagagaaat	gctcccacga	tgaactcact	180
acagcaaagc	aaaatgtaag	aataagggat	aagccctcgg	acttaggcaa	agcaaaaaaca	240
gtaaatactc	actgattttg	atcgctcctc	cctgcggtac	gatagccttc	agaagcccga	300
aacaacgaag	gtcagaccta	atatgattcg	agaaagctca	gcaggaaacg	tttcatccgt	360
tcaactgtat	caatgcgaag	atggcatagt	tgtcatatcc	atgtagttgg	catccacccc	420
ttcggatata	tatgtatcac	cccagatctt	tctatctctt	tagtgcgaaa	taccttagtc	480
agaatcaagt	ggcaaaggat	gacacacgca	tctgtctcca	cgctctcca	tagtcatgat	540
cttatcaagc	atcagcgaca	tggcttcacg	aatcttgagg	tcatacagcg	cagagcttcc	600
tctgtctcca	tcttaggtgt	gtcagctact	cccagctcaa	ttggatgaga	gctattactc	660
cataattgac	gacacctata	aactcaactc	cactccttca	tccaccttac	tcaaaccttt	720
catctgaata	tttcgatgcg	gttggccttg	atataaagct	gatcggtcag	agacgacgga	780
cgcacactcg	ccacgaggct	ccatagtcgt	gcagtttttt	ctgaaaaacc	tcagacaaat	840
atcaatcacg	tgctcgaact	gctctactgt	atctggcttg	gcgtagtcac	ttctttcttt	900
gcttcttctc	cgttttttcc	actttttcgg	tttctctccc	tcggtcttct	tgccaaagga	960
atatatatcg	gtggtatcga	gactttctct	tcgagcaaag	cttctttcaa	cacctcgtta	1020
atgtttggac	atagtggaac	ttcaagccct	tcagatagat	atcgttttatc	tcctctattc	1080
cttgcgattc	tcttcgcaca	ggattatttc	cgtgataccg	gaacgttggc	agccaatatc	1140
ttctccttga	ttccacctac	aggaagcacc	tttcctttag	agtgtttct	cctgtcatgg	1200
caataccggc	ccgcactttt	cgacggtaag	agccgacacc	agcgaagtca	ccatcgtaat	1260
acctgcactc	ggacgtcttt	cgggatagca	ccttcgggaa	catgtacgtg	tacctgccaa	1320
ttatgaaaat	ttcctgagag	atgcccact	catcactatg	ggcacgaata	tatccaaggc	1380
tattacggcc	gactctttca	tcacatcgcc	cagattacc			1419

(2) INFORMATION FOR SEQ ID NO:454

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 781 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...781

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:454

ctgctccccga	ctcttgagga	tccccggggc	tgtgtcaaaa	tcgaatttca	cacaaccgcg	60
attgttatttt	gtaggacttt	gtgaccggg	cgggattcaa	cccgcgacct	tcagaaccgg	120
aatctgacgc	tctattcagc	taagctacag	gcctttttgc	aaaacaaaag	tacgaaattc	180
tttctgtttg	agattgtttt	tctcaaaaaca	gcttagcgct	tgcggcggaa	aaagaagctc	240
agatgttcat	aatcgacttc	ctgctcccg	agtaatgctt	catgatcaaa	aatcctcttt	300
gagagaagcc	ttatgatatt	tgtaaagtat	ccccccccta	tcaccaaaga	gtgcaccaga	360
atcatttctg	tattgacgat	attgcgagca	gctgaagaat	acgaatacac	caatcgaaat	420
cagctgaaaa	tcggtatatt	agttgtacgg	cggtgctatc	aatcgctttg	caataaaaagc	480
ctgatggcat	ccaacatacc	atccgcaaaa	cttctccatt	ggagttcgaa	aggaggacga	540
gccgtcgtaa	acccttctcc	ttaccggtgg	catcaatcag	catggtatgc	cgtaaaggac	600
atccggtaat	cccatggag	agcttttaat	gccgttgcta	tcgcctcgac	aagatcatcg	660
gatggcagaa	ggtcgccggc	attcagaacc	aaacatagtc	gcccaaagcc	atacgcaggc	720
ccttattcat	agcatgtata	gccctttgtc	cggttcgctg	attagtcatg	atatcagaag	780

(2) INFORMATION FOR SEQ ID NO:455

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 737 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...737

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:455

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aatattttaag tatggagctt ttcgaccggt actgtgaact tttggaacta atcccagaga      60
cgtgttttcg aatcctgcaa tggaagaacg agaccggatg ctcttgagat cggccgaagg      120
tttatagaga taatggagtt ggggggtacaa ttatcctgcc caagattatg aatatcaata      180
tccgacccgg gcctccgaca gtaaaatgaa acaatagata tgatggaaag cgatgaaata      240
aaaagattca agaaaacctc aaagatatc aggggggtgtt atcggagata catgttttat      300
gagagacctg aaaaaagatt acagcccggg ggatgaaagc atcgtctgga ttcgagtatg      360
ctcgccatgc ttttgaatgt ctctcctact acgtttaccg atggagagca aggaatgagt      420
tgccctacac gattctgagc acggagcatg tgcctatcga ttcgacgaag tgtacgtggc      480
cgtcaaattg gccgggttaag agcccgcgga ttcaatcgga tagaggcatt aaggactttt      540
ccgtctatcg ggacgggtatc atagagggtg gtgggttttg agcaaaggaa aagaccctng      600
attcatatca aggaacaaat actgggaaag aacggataag gggtgncttg tattcaacta      660
ctatatgcct tttcctttca agcccagagaa gaaatttcaa aaccgcctct acgaagacaa      720
acgagctttc ctggtta                                     :

```

(2) INFORMATION FOR SEQ ID NO:456

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 364 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...364

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:456

cagcaagctg	agatcgtttg	gcgcgcaagc	gtgcgatacg	cttcgtcttg	gtataatggt	60
agcaatagct	caagagacgc	gctccaagca	gagaagcata	aagaccgtat	cgttgccatc	120
caaggggcta	tacgaaaaca	ggaagcctct	ctataagcag	tacgatgtag	atccttaatc	180
acaaattgag	ccgccggaga	gcaacatcaa	gatactcctg	ttggcgtgta	acctcatatc	240
cctcctcaga	gccgtagcgc	agaaattcgt	agccacaacc	gtcggcgat	atttgggaaa	300
aggaaaagtc	tgcgcgcttg	ccaatcaaaa	ttgtaccccc	agcagcccca	ctatagtcac	360
cagg						364

(2) INFORMATION FOR SEQ ID NO:457

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 400 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...400

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:457

ctgaaatgat	ggacgaaaaa	gggaatgtca	agaatatcaa	gcaggccata	tggccgatgc	60
catcggtaca	agcctcggtg	ccatactggg	cacctccagg	taactactta	tgtggagagc	120
ggatcgggca	ttgccgaagg	aggacgacgg	gtttgacggc	attgggttacg	ggcagctttt	180
tcctgttggc	tcctttctgt	cgccctgtt	tctccttgtc	ccagggtgcag	ctacgacagg	240
tgctctgtaa	tggtaggggt	atztatgctc	ggatccattt	cgatgatcga	tttgccgacc	300
tgtccgagac	ttttcccgtc	ttcatcacac	tgctgacaat	ggtctcacct	actctatcgc	360
agaggggaat	ggcccttggg	gaatgttggc	attccgtctt			400

(2) INFORMATION FOR SEQ ID NO:458

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 666 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...666

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:458

aaacacatac	caccatgaaa	gttaaactcta	ccggcgcatc	ggcacgggag	atgtattccc	60
attccgagtc	catcgcggtca	aagaagtagc	cgtgcgctct	ttccgcacct	tactccgaat	120
tccgggtacac	gtgctctgcg	aagaatctct	atggggatca	agatctcctc	aattcgatga	180
gagaacatgg	ttatgcctgg	gacagagatc	cttgacaccg	gctatgctca	acgtccttac	240
agccttcttg	gttcgcccga	agatttttgt	ccttgacgga	caatagctga	aagttgctta	300
taggggggtat	gtcgaagtcg	tgatttgcg	ctttcgcat	acccctttca	gtatatgcaa	360
agaggatggt	tagatgtgag	aggtggaaag	gtttcgcaa	aggcggctac	attctccgat	420
ggagtagccc	atgaagtga	cgacgaatgg	ctgagctgtc	gggtgatacg	gcttgccaca	480
cgtagaagtc	aatacgggtt	tcagtctttc	gatcagatcg	ttggggagga	tcgggaagac	540
tggttggtt	gcgagggtta	gaggaaggaa	taaccgcaga	aggagatact	gtcgccagat	600
ctgctgccat	tctgttggca	tgagctgcaa	gccggtataa	agcccatcgc	ggaaaagcgt	660
ggcaaa						666

(2) INFORMATION FOR SEQ ID NO:459

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 587 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...587

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:459

aagaagcatt	tccatctgac	gctgcatgcg	gctgcttctc	cggcaagctt	agcagcaaac	60
ccctccgtat	tatccgcata	gatgatactg	cgcgaagctt	gacgagcaga	ccgcaatgag	120
cattcatgcc	gtactcggcc	acatcttcag	acttccaccc	tgagcaccta	cgccggggac	180
aagcaagaaa	gcgtccgcac	gatctcgcca	atatctttca	gcatggaggc	ctgcgtagcc	240
cccacacata	catcagttga	ccggcattat	cccacgtctg	gctgatacga	ataagcgttc	300
gaaaagggtat	tctccatcgg	catcgcgcat	catttgaaag	tctgcaacc	tttgttcgag	360
gtcagtgcca	gaagcaccgt	gaacttgcc	gctaactcag	gaaagggctg	atgctgtcct	420
ctcccatata	aggagaaaacg	ggagggcatc	caccttgaga	tgctcgaaga	acgaacgggc	480
atacatatca	tcgtattgcc	gatatctcca	cgcttgccat	cggctatgat	aaattgatcg	540
ggtatcgctc	tcgaatgtat	tcgatcggtt	tttcaaaaaga	gtgagct		587

(2) INFORMATION FOR SEQ ID NO:460

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1000 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1000

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:460

ggtgtctgtc	taatttggtc	tcttcctgtc	ggatcaacac	tttcaccaa	ttgatctgaa	60
gcaatggctg	aatgagcctt	ttactcctcc	accggagacg	aaaatcagct	ctttgaatag	120
gcagggggga	tccccctaaa	atcaaaaatg	atagtcccgg	agttattcca	ctccgggact	180
aagaactcgc	atccccctaaa	aaacatttag	gatactattg	gtctataggt	caaattgcag	240
gctgtatgat	tgagttgtgg	ttctatagat	caaaatctca	aaccaaatac	tccaaaaatg	300
gcgcgagaat	cttttcgttc	cggcgcgaga	ttttttcaac	tccgaaccaa	aataaaaaatc	360
ttctcagacc	acgtttttca	gaaccgaaat	accgtcaagc	tattttcaga	agcgatacga	420
cattgtcatt	gctaattctga	attagagcga	gtgagttttg	ccggtgcagg	agattccact	480
tccaacacat	ggccggattc	gggtcgtccg	ataccattcg	gccaaaagta	tagtagtaat	540
cttctcatta	cgatagatca	cagccaaatc	gcccgaagaa	ttacgcgtaa	acggtaaccc	600
aagcctcctg	tcacggtata	ggaattgccc	ggaagtgtga	atgaggcata	gcccccatag	660
ggaagacggt	cacctgtgcc	gagccgcgaa	agctttcaat	ttttcatttt	taatgggatt	720
ggaagtgtgt	gaataccggc	acgcagactc	agacgcgata	tgggacgcag	ttctcctccc	780
aaacgatggt	gtggcgtgaa	ccaaaatcct	ctgaaatgaa	cttattatca	acgatgccgt	840
accgtttctc	tccttttaatt	tgatctggcc	gnaagattcc	aatcataatc	catactgaga	900
aggccgattt	tgccagcaac	gactgccaaa	cagccacaaa	tcgtcccggg	ctactcattt	960
gataagtatt	atacgattcg	gagtcctggc	actcatgaag			1000

(2) INFORMATION FOR SEQ ID NO:461

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 940 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...940

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:461

acgcatcccc	tcccatcagc	atacagaggc	gtatgtacac	ccctcgtgag	ggaacttcca	60
aggctgtcta	tgtagccaac	ggaancagag	gaggggaagat	aactacggag	tcgctgtaga	120
tcttaccatc	gtggatcgtg	atggaaaccg	ttggatatgg	gcactcctgt	cgatcacttt	180
ggccgagcgg	cacatggggg	caggaagaac	gcttggccgc	agacggcctg	atcagccgag	240
aggcttccgg	aaccgccggg	tgctacgtcg	cataatgaag	tcggtcgggc	tggtccctat	300
cgcagggagt	ggtggcatta	cgaactgccg	gagagcatga	gctcaccgcg	tcacattatc	360

gcttgctcga	cttttaatcc	ttgttcttgt	ttccgagagg	tctgcaatgc	ggacatcatg	420
gaaatacgaa	ccaaaaatcc	tcgattgcgg	ctcgtgtttc	ctgaaaaagt	ggcgtgagat	480
ttttttcgtt	tggcgtgtaa	attctttaat	tgccgtgcc	aaacaaaaaa	attctcgcgc	540
atgtttttgt	ggggaacaaa	tgcgaaaatt	ccggnacgca	aacctaccga	tatgaaatga	600
tgtattccgt	tgtacttgag	accggagtg	gcaggatctt	ctctccaaaa	tgtacttcgt	660
aagtgtaaat	tagcttactt	tgttaataata	aacaaagtag	tacagtcgga	aaaataaagt	720
atcacaatac	tcacttaagt	taaaattatg	gcaaaagaaa	aagaaaagct	cttttccgaa	780
ttcctccggg	ttcgagagaa	gcctggatcg	ataagataac	ggccgatctc	aaggggttcc	840
ctttgagaag	aagcttgtct	ggcggacgaa	cgagggtctt	aagtcaatcc	gttttatcgc	900
agagaggaca	tcgaggatct	gaagacaacg	attctcttcc			940

(2) INFORMATION FOR SEQ ID NO:462

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 905 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...905

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:462

ttggaaaatg	aaagggaata	agtttgccgt	cataaaccta	acgattgctc	gttcggttat	60
caaacaagta	cgaattaatg	ggacctttgc	acaatgagag	gcacttttgt	ttattcttct	120
tattgtgtgt	caggcgacta	tttggtaacg	ccgaatttcc	acaagtggaa	agctatcttt	180
ccaccagtgg	aaagtttgtt	tccaccagtg	gaaaaagaat	tttccacttg	tggttttggc	240
gaaaattcca	taagtataga	atgagagcta	tattgtcttc	actttcccaa	tctctgggtc	300
gaactcacat	tcgtgaataa	accgttttct	aacagatact	atcggctgct	attgcgtact	360
tttggggcaa	atcagtacaa	acagcatgga	tagaaatctt	ttcaggaata	ttatgccacc	420
ggcttttagc	attgctatgg	tgtggcacat	cgaacgagca	cggctctgcac	gtaaagagtt	480
attgggcgga	gagcatccgg	atgagacggg	agcgtatttc	cgccccgatt	cacatcatag	540
ggaggattcc	ccggctttgt	ctatggaggg	ctgattgccg	ctatccttac	tgccatggca	600
atggtaccgc	agccgctgca	ggttatcgtt	ttcaaagcgc	ccgatggatt	cggagccgaa	660
tctgagatac	gtgacagcta	atctgatctc	aactatcgcc	gtcctacccc	gatgggagta	720
gacttggagc	tacgccccat	atcaaaagagg	taacggaccg	gaaagtactg	atggagctat	780
cgctattgca	gaagggcagg	taacgggtgga	agggagcatg	ctatccgtcc	tgcgcccgaa	840
aagaagtatg	ccaagcaaac	ggagaggggca	ggatataaaa	cggctttgcg	actcaagcat	900
agacg						905

(2) INFORMATION FOR SEQ ID NO:463

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 778 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...778

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:463

ggccgaaaaa	ttacagcagt	attttggatt	tgaccgattc	aaaggcaata	ggaggctatc	60
ataagaaatg	tattagccga	acgaaacact	tttgtgctat	gcctacngga	ggtgggaaat	120
ccctatgcta	ccaattgccg	gccatgccat	gaccggcacg	accatcgtag	tctctcctct	180
tatcgctctg	atgaaaaaat	caagggtgat	gccatgcgta	agcttcagtg	ccaaggatgg	240
ggtcgtcact	ttatgaattc	ttctttgaat	aagacacagc	tcgaacgtgt	taagatgatg	300
tacgcgatgg	acttaccaaa	ctgttgtagc	tcgctcccg	atcttgacaa	aagaagaaaa	360
cattgctttt	ctgcgtgaaa	tagatatttc	gtttacgcta	tagacgaagc	ccattgcata	420
tcggaatggg	ggcatgactt	cggcccgaat	acagacggat	tcgtcctatc	atcaatgaga	480
tagggccccg	tcgatcatcg	ctttgacagc	cacggctacc	ccgaaagtgc	agcatgatat	540
caaaagaatc	ttgggatgat	ggatgccgat	gtattcaaat	cgtctttcat	cgtcccaatc	600
ttttttatca	tatacgtcct	aaaacacagg	acgtagacgt	gacgtagtca	aatacatcct	660
atcccagccg	ggaaagagcg	gtattgctat	tgcatgagtc	gaaataaagt	aactactttt	720
gcccaggttt	tcgagccaat	gggatcaaa	cccttcctta	tcatgcggga	cttgacgc	778

(2) INFORMATION FOR SEQ ID NO:464

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2437 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2437

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:464

agattcagga	tgctcgctat	ctgttggtat	tcaaattgtac	caaaccctnt	atccgcaatc	60
ggatcacacc	ggaatcaata	accagaaaac	atataatttg	agtgtaacga	acattatcga	120
tgacgaaagg	gttactatcg	tacaagggtg	aacggcatcc	tgctgtgtca	ggaatcgtgg	180
atggcaggca	aaagcccaga	tgggaccgaa	accatcccaa	cgcgattgac	gacacggaag	240
ccgatggccg	agctcaatat	gaacgagatc	ggacaataaa	accaaccctt	aaaagtatgc	300
aaaccatcat	caccacattc	atccttttat	ttagcttttg	gaatgctctc	cctctcctat	360
tccatcttca	acgagaagcg	actgctacgc	aaggcgcagt	acagtatggc	aagctcaatt	420
cgtttttcct	caccctggct	ccatagccta	ttacttcact	tccctgtacg	aagcgtatgc	480
cacggggagtc	agttcaatac	gctatccggc	tggggcgtag	cgatcttggt	ttttgcctag	540
ccatgctctt	cttcgtcatc	tataagctga	gggatgtgtg	gatgctgagc	tctatacgt	600

acccgatcat	cgtatcgaaa	cgagcttcct	gttcaagcgg	tacgccatcc	caactatttc	660
ctcaacgtca	ttccggagct	tatcggatca	ccctcctttg	caatgcttgg	attaccttct	720
gtgtcgggaat	gccccgtatc	tcgctatcct	cttcgttcgt	atccgtcagg	aagagcgcgc	780
catgagcatc	tatgggagac	ggtacgatag	agaatgattt	tgggcaaaaa	ggctaaaata	840
cagaccgaaa	aagttttcaa	caacgaagac	gagtttggaa	tcttccaaat	aagcacctga	900
aaggaaggag	atcctgaagt	aaaaaagcag	gaaagcgaac	tttttcagtt	cggaccatgc	960
tttcaaactc	tttgcaaaagc	atctgtatat	agatcaaaaa	cgatttatat	acagatcggt	1020
ttcgttttta	tacaaatcgt	tttccatttg	tatacagatc	gtatctgatt	tatatatatt	1080
cggacggctc	aaaaggccca	ttcccagagct	tatataaaag	aggcacgacc	cgattccacc	1140
acgaatcgag	tgcgtgcctt	atctgtttgc	aggtctgcga	aaagttttat	cgcctatgct	1200
tcatacgccc	tgtccgtctt	cctttgataa	gcgggtagca	tgtagatgaa	tgcaccggag	1260
cgatctgccc	gggtcgttgg	tcgtatgagc	gaagtcggag	tacatgttgc	tgatcattga	1320
gtctttcggt	atgctgttct	gccgggtggaa	tagctctgat	atatagccgt	tttcttttgt	1380
gtggagcttt	cctcggcttg	caaatgtagc	aaaaaagccc	aatccgatga	atcgaaaatt	1440
ttttggagaa	caatctcatc	ccttacggga	aatcacattg	cttctgtttg	cttgcaagag	1500
cttgatttgt	aaatgcttgt	agccagccga	tgtctttatt	gtatttccac	tgagtaaaaa	1560
tactcacaca	ttgagtaaaa	tgtatgggca	agtataaaag	agctaagtac	cgctattgct	1620
ttttcctttc	tgttcggatt	attatacctt	tgaggaggtt	actttttatg	cgcactcgac	1680
gatatgacaa	ccaagaaacc	ccaagccatt	ttagattaga	gaaggcctat	aacattgaaa	1740
ttcctgatct	ctcctcacaa	gaaggataag	ctggtcggta	aatagatatt	tcaagcaaga	1800
ttcctccggt	gcatcgttga	gctttgcttg	cgagaatgtc	agatagaaaag	catgacttgg	1860
ctattgattt	tcctgctcta	aaaaagcttg	atctatcgta	taaccaaatc	ataagctaga	1920
gggtctagaa	cgtcttactt	cgtaacaaa	acttcgtcta	gaagtaacca	aatccgtaaa	1980
ctagagggcc	tggatagtct	cacctcgcta	caaaactttc	tctctccgat	aaccaaatca	2040
gtaagctaga	gggtctggac	gtctcacctc	gttagcggag	ctttatcttt	tgataacca	2100
aatcagtaac	tagagggtct	ggaacgtctc	acgtccttaa	cggagcttta	tctgtcggta	2160
accaaatacag	taagctagag	ggtctggaac	gtctcacttc	gttaaaaagc	ttcgtctaag	2220
aagtaaccag	atcagtaaac	tagagggcct	ggatgtctca	cctcgctaac	aaaactttct	2280
ctctccgata	accaaatacag	taactagagg	gtctggaacg	tctcacctcg	ttagcggagc	2340
tttatctttt	ggtaacaaaa	tccgtaagct	ggagggtctg	gaacgtctca	cgtccttagc	2400
acgcttgaac	tatcgggtaa	ccaaatccgt	aagctgg			2437

(2) INFORMATION FOR SEQ ID NO:465

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1626 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1626

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:465

gagggccttt	attcataatt	cgctcagata	taaaacgaga	gttaattcag	tagccgattt	60
cgacgaatag	tttcttccaa	cattcataga	tatttgccga	gagtaggatt	tgaccatcaa	120
ctctgattct	tgtcccattt	tcttacgaga	gtttcatcat	ccatcaataa	gcgtaactta	180
tccgcgaagt	cttcattgct	tccattggca	caaggaaacc	attgcgaccg	ttttcgatca	240
gttcctcggg	ccggctggac	aatcgtatga	gattataggt	agtgcataatg	cttcgcttcg	300
agaagtacca	ttggtagtcc	ttcgaaacgg	gacgtcatta	gataatagca	gatgattccg	360

tagtattttgc	gaattttccgg	tgtagatggg	attattttcta	tttgcgactc	catatttgca	420
gatgcaattt	ctttacgtag	ctcgattcat	tttcgccatc	tccgactatg	ataagcttcc	480
aatcaggcct	tctcgcagca	ctcgtgatgc	atcttctatc	atgaattcaa	aacccttctg	540
taggttaagc	ctgccaatcg	ccaacatttg	tttgtgagta	gtagcatcct	ttggactgta	600
gtaaatgaaa	cttgattggg	tatgacatat	gcttttaggc	tccacgtaag	attgcctcga	660
acgattgctg	atctcttttt	gtcagtctac	aacggcatca	agccctgaat	acagaaaccc	720
ccttatgcgt	tttgtatagg	gcgggcaata	tcataagaga	tatgttcgca	tccgatcgta	780
aatatctgcc	tctgttactg	atctgagaca	aaattgtatt	gataaaaaata	ttatccctat	840
caataaaaacc	ggttcacgct	tcttgatatag	ggctttttatc	ctcgataagc	cttgaaatat	900
actgttttgc	gggctaattgc	attgccataa	acctaattcc	gagatgggtg	acttctattc	960
ctttttctac	ttggaaggaa	gctctccttc	ttttgtacaa	acgctgacta	atgatacgcg	1020
atgaccattg	catgcagggt	gttagccaag	ttgatcacgg	cgcgttctgt	accggcacgt	1080
ttgttattgt	atctaacagc	agataaatca	tagagaatat	tttaacgttc	ttttttaaga	1140
aattcatcaa	ggctattggg	agtattaata	gcttcaatat	tattgattgt	aattcctatg	1200
tgaatctatt	tcatttgatt	gatattctggg	taagcatgcg	gtttgttgat	cgcaatatgc	1260
atattcagct	gcaaattcat	gattttttttt	gatattccaa	agattctctt	cagggatttg	1320
ccattgttgg	tcattcttatt	gtcttttgca	gatgttttcg	cccaaacctg	ataaaatcat	1380
tccacctcgt	tgtttttttt	atgtgcgatt	aaaggataat	gcttttcgat	acctccttca	1440
ataggcaata	acacgggtatt	ctgaggctcgt	ttcttgcata	gctctttatc	ggagggcata	1500
atgcaactgg	ttgtcgattt	atatgcagaa	ttaaggctct	tgagctttct	tttctcttgt	1560
gaatgcgatt	cttcatgcct	tttttatctc	tttggttgcc	aattctcctt	tatgtttcgc	1620
aatacc						1626

(2) INFORMATION FOR SEQ ID NO:466

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 745 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...745

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:466

tggaggggatc	ccccttgatg	atactaccca	tcattcgtcc	cataagcaca	agttgtcgcg	60
atcagcccat	tcgccccgat	agagatccat	ggctcgccat	agttgccctc	tgccaaatgc	120
gctatgcgga	tgatgtcggc	cgtgtttcct	gattgttacg	agacaaggct	tccactattt	180
cgatctcgtg	cagcaacgca	cgttgatcag	ctgtgtacgg	ctcctgatcg	ttcccaacac	240
cttgtcggct	cgctgctgat	cataaagaag	agcgtatgct	cgggcggctc	ctcttcagct	300
tcagcagttt	gtttgccatg	gcttcattca	tccgctccgg	ttgcaaatca	tcaccacacg	360
atacagggct	tcatagatgc	ggaagctgag	ttctgctcca	cggcttcggc	ttccttgctg	420
taaatgatgg	gttggctgtt	gcggctttga	tgtattcgag	ccagtcggca	ggggtaaagt	480
aggattccga	ccgagcatct	cgcgccactg	acggatgtag	tcatcgctcg	gtgcaggcga	540
gaggacgcgt	ttacgacagg	atagacgaaa	aacagatcgg	ggtgtgccgc	gcacgtattt	600
tcacacacga	cggacaatga	ccacaagcat	ccgtatcgtc	ggcatctggc	agttgagata	660
gcgtgcgtag	gccaaagcca	aagggaagcc	cctccccctt	cttctccggc	aaagagctgt	720
gcatgggcta	tctgctcgtc	tgagc				745

(2) INFORMATION FOR SEQ ID NO:467

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 534 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...534

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:467

cagaaataac	ttatcaaaaag	caaactcctt	gattatcatt	ggatatgggtg	taaagataaa	60
ggaataaatg	aaatgataaa	ggacaatttc	gattacaaaa	taaaccttca	ttcattatcg	120
acaagtatgc	aggtgcctcc	gttgaaaatt	cgctcaaaaa	attaatgcta	aaattattaa	180
ggaatctata	gagagataga	taaaacatgg	tttgtttaat	gcaaagaggt	aagagtgtgt	240
gtcaaatgac	acacactcctt	taaaaataaa	ttattgctaa	atactatttc	aaatttcaag	300
gtcaattttt	ctatcgtgca	agtgtagcac	acatttgtcc	actctccatc	ttgaatacaa	360
atggtcagtc	cgtaatcttc	cccattgaaa	tcatccaacc	aaaaggcgac	attgcctgaa	420
cagggatatc	cccttaaaac	atcttatcta	ctgattggct	gacaatttcc	gcattggctt	480
gggagacatc	gcacattggg	ttggccaaac	tgggtgcatg	ccatcccaaa	ttat	534

(2) INFORMATION FOR SEQ ID NO:468

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 540 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...540

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:468

gatttgagca	agttagactc	ttatctcacg	gctgaaaaca	tctcttttca	gagggttcgt	60
atgaaaatct	tcaacatttc	gtagccgaat	tgtatgactc	ggcatcagtg	cgcgctcgat	120
agcgcgtatc	atcagcggtg	tcaagagttc	ttccgcttcc	tcgttttgga	agagtatatc	180
gaagcggatc	ctaccggttg	ctcgaaggcc	ctcgcacatg	tgtccatctg	cctacgggat	240
tgacctcgaa	gaagttgatc	gactgatcgg	atcgatcgat	cgggcagctc	aggggcctcaa	300

cgcaatcgcg	ccattctgga	aatactctat	agctgtggtc	tgctgtcagc	gaactgactt	360
ctttgaaatt	cagcaatctc	ttcctcaacg	aacatttttg	cgtatcgatg	gcaaaggcg	420
caaacagcgt	cttgtaacca	tagcgagact	gctatcaccg	agctgaagcg	gtatctgtcc	480
gatccccgaac	cccgaccctt	gttcttggac	aagaggagta	tgtgtttctg	agcaatcgcg	

540

(2) INFORMATION FOR SEQ ID NO:469

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 843 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...843

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:469

tcttcagcac	acgggtcatag	acatcttgat	gaagaaactt	cgccaagcgc	caaagatcat	60
agcatcaaac	aagtggcctt	ggccggcggt	gtatcggcaa	taccggactg	cgcgatgctt	120
ttcatgacca	tgcccgcagt	tatggctgac	tgtattcatt	cccaaattcg	cctatacaac	180
ggacaatgct	gctatgtagc	cattttccgga	tactataagt	acttgcaggg	cgattttctgc	240
cccatgatgc	tgttccattc	tcgcgcacga	cggctctgat	gataatcccg	ttattccgaa	300
ctggcgaaagc	tcttgactga	gcgaggcctt	acattggcta	ctgcgagagt	tgccaccggag	360
gaactattgc	ttcggctcta	actcattgcc	cggaaacctg	acttttttca	gaggttcggg	420
cgtggcatat	cagaacgaca	taaaatacgc	cttttgggag	tgtcccaagc	cgatattgaa	480
agccatacag	agtcagcgag	cctgtggcac	gcagtatggc	tgtgggtgtt	tgccgtctgt	540
tgatgccaat	ataggaattg	cgactacggg	aatagccgga	ccttcggggg	ttcgatctg	600
gtgccggctg	gcacagtttg	gacgctctt	gtcatcgtga	ggacactttc	gcgcactgtc	660
tgcatcttag	cggtactcgt	gaggagttag	cgctcaggcc	accgatcagg	cacttttgac	720
tatatttgac	ctctgaaaaa	caaattgtga	ccggtataaa	tccaataaaa	atatcagcag	780
aaataagatg	aaatcgggta	tttgctatag	caatcgctac	attgcttttc	agcacagcga	840
cct						843

(2) INFORMATION FOR SEQ ID NO:470

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 810 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...810

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:470

tcctgcgcaa	agagggttat	ccgcgccatg	cactgggttg	cgaacgcaa	cgggttcagg	60
attgacttcg	gaagacattg	cagccagaca	gattgcactc	ctccgggtat	ttatacccct	120
cagagtattg	aggagaaaat	tgtttgatat	ccgataagtt	tttctccaag	acaaaactcc	180
atcgtcagaa	aaagctgaag	acgtcaggcg	cagtatgctc	tcctacggag	ccgatagcct	240
ccgcctttcg	acgagatgca	cgccttattc	aaaatcccat	taggataaaa	gtcaaggaat	300
atcaggaggg	tggcccgaat	aatctaaagg	attctcttcc	tgcgaaaatc	tgctttttga	360
aatagtacag	aagcctcata	atcaatggat	cgtgaccgac	aaattacctt	ttgctctcta	420
ttcgcgggtg	gtcaaagccg	gaaacgtttc	tactacattg	atgccaaacg	cgattctaaa	480
ggaaatgact	tctgggtgata	acggaaagta	acagtgccga	agaaggttct	gcaatgacgg	540
gcataagggt	ttcctctatc	gcgaagattt	tgccaaattc	acagaagctt	tttgacgtg	600
ctaaagtctt	tcgaaaagag	gagcggagta	tccggatcga	acaggcgatc	ggtttgctcg	660
aattggagca	gagcctttcc	gatatgcaac	gggagtggag	ggtttagcag	agtcctccga	720
ttctattttg	gaggagatga	accgctgaaa	atagatttcg	atttttgatc	ttcctcccat	780
ttcccctctc	caaggaggga	ctctcctccc				810

(2) INFORMATION FOR SEQ ID NO:471

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 414 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...414

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:471

gaagcattac	agtactattc	cgtaccggcg	actaacacgg	tcatacactat	gccgatggta	60
aacgttatcg	ttttgtcgaa	gtcccaggct	ccacgccgat	ccggggccaaa	tcggtatcag	120
ttggaaaaaa	ccggcaggaa	acgcttattc	gcttacaagc	tcctcaatta	ttggatggga	180
ggaaacaacag	accaacgagt	gaatgggatg	tgacgtccaa	ttggacagga	gccaagtagc	240
cgctccagga	gaagatgtag	agtttgcaac	gacagaaaat	ttcggttctc	cggcgtagcc	300
gatttgcatg	tcccagacaac	caaccccaaa	attatcggtg	acctatcaat	aattcccgcg	360
aagggaattta	gtttgtttac	cacaaggcag	tcatttggac	gaatcaaccg	ggcg	414

(2) INFORMATION FOR SEQ ID NO:472

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1307 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1307

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:472

gtttctccct	tgaaagtgga	agaccgtgtg	acgggatatt	ctcaagcaga	tgcagggtgag	60
agtctctttg	gtacgagcaa	cggtagacac	tgcccatagc	atgggctacg	tgtttccggc	120
acacatccac	acgaatggat	acaattcatg	gagctattta	cggctataag	atggccaatt	180
atgtagccat	ggaggatgga	tcaatgtcta	tgacgggtgat	cttggcactg	tgctgaccga	240
tacgtcacga	ctgatgtctt	catgcgcaat	ttcagtaaga	agcatgccat	gctcttacca	300
gtctgagaca	tgacagtggg	gatcccgcga	tattcataga	aaagcagtgc	gacgatacga	360
agagctgcga	gtggatccca	aaatcaagta	catatatctt	ctgacagcct	cactcctcag	420
cgagctatag	agattcaaaa	gtgtgcgcgc	gcaggattaa	ggccagcttt	ggaatcggta	480
ccaatctgac	aatgatgtgg	ggggggggcgt	agagccgttg	aatatcgtaa	tgaagctctg	540
aagtgcgaaga	tgacggcgaa	agacgactgg	cactactgtg	taaagctggc	gacgtcgatg	600
gtaagcatatc	gggagagccg	gaagaaatcc	ttttggcatg	aatacactgg	gtatcaaacc	660
gaaataatgc	tgacgggact	attcttggat	ctttcaatcc	gatgcatatc	ggtcatttgg	720
cactggccaa	ttatcgacag	aatacactcc	gatcggacag	ttgtggttcg	taccaagccc	780
gttgaccctc	taaaaaatac	ccaagagctg	ctcccgtacg	atctgcgttg	cgactgatag	840
agcaagccat	tcgtaaggat	atccgttttc	aagttctgcg	catgaagagc	tgctcccttc	900
tcctcactac	acgatacggg	cgcttcgtgc	ttctccatgc	tgtatcctca	tcacggttc	960
gccctcctga	tcggggcgga	aactggcgga	gcttcgatcg	atggaaggat	catcatcggc	1020
tgatggccaa	tacgagctaa	tcatatcccc	tcgggttcggc	tatgaagtag	acgatacgcg	1080
cttccgaccg	gatgtcgata	catacatgat	gccccgcgaa	tagaaattcc	tctacccaaa	1140
tcaggacaag	catattggaa	ggaaaagatc	tacgcttttg	ctacctctcc	ctgagtctca	1200
ggacgtcata	gcattctgcc	tgcaagttgt	ctgtcaccaa	aacgctgaaa	aaagacaagc	1260
tatggaagaa	gaaaaatggt	cacgctcgtc	tgccctgcaa	gcaatgc		1307

(2) INFORMATION FOR SEQ ID NO:473

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 534 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...534

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:473

gagacaagta	tctcacaaaa	gcgtcccat	cccgtgagtg	tacttcggga	gaaacagttt	60
ccaagtatcc	atactgggct	actcgagagt	tgttgatgat	gccattatgc	acagggatta	120
cgagggaaac	gctcctattc	agttttagag	tatgatgatc	gcattgagat	ccaaaacccc	180
ggcggattgt	acggcaggtc	agtcccgaca	atttcccaa	tgtagcgat	tatcggaatc	240
cctttttgcc	gaagcaatga	aagtcttggg	ctatgtaa	cgattcagcc	gtgggtctat	300
cgagttcaga	aggagttgga	agaaaacggt	aacgggcaag	cctttttgat	ttttcattga	360
ttacagcttt	tcgagtagtc	gagaacgttt	ctaaaagtat	tttgaagaag	gctttggggg	420
agaaacagcc	caagaaaagc	aaggaaagac	ccaagaaaag	ccaagaaat	atagaggatg	480
aaatattgga	gaaataaaaag	actttccgca	agttacaagg	aaagatttag	aaaa	534

(2) INFORMATION FOR SEQ ID NO:474

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 590 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...590

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:474

tgcctttatgt	tgaatttggg	caatttgtgt	taaagcgtat	atatcgaatc	ctcgacttct	60
ttaaaaagaa	tggcaggaaa	atccccgtga	aaataaaactt	atctgcacca	atttttccca	120
actcctggta	ttcaggatta	gaggtcgtat	tcctgaacat	ctcactaaat	gctcatagcc	180
taattttctta	tagaaaaatt	tgtactcatc	tatttgacac	tacatcagaa	agctcaaggg	240
agcactccta	tatccggcaa	agatacgaaa	aagagattat	atcacaatgt	ctaagtggat	300
ttattttcagg	attgaagttg	tatttttctg	ttatgtaatt	taggtaaaca	caaagtctga	360
gcattatgta	atacagagat	gagaaagacg	atgttaaaca	aataagggtg	tttcggaagt	420
gcttgctgag	cagagaggac	aacagcagaa	agtcctgcat	gattgcagat	tgataataga	480
tggaggaata	atagcacgtt	acccgatgaa	gaaaatcaac	ccgtgcattc	gatattctata	540
tgaaaagcgg	ataggcgaga	ttggtacagt	ctttttggtc	ggtgagccgg		590

(2) INFORMATION FOR SEQ ID NO:475

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 484 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...484

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:475

```
tgacttctta cgcccggtact gatggaacac gaccattcga aaagaaactt ccgaacgccg      60
ttggctctat caatcgcccc gtcagatctt gaccaaggct ctaacggtgc cagcgatttc      120
ggcaataaat tcggccagcc actcattcag gatccgttct gacctttgaa caccaagaaa      180
ctcccgatac tacctgtatg gctatgacaa agtcatcatg cttgccggag gtgtcggcta      240
tgccaacagt cggacgctct taaaggagag ccgtctccgg gagaaaaagt agtatcctgg      300
gtggagacaa ttaccgcata ggtatgggtg gcggagctgt cagtctgtga atacgggaca      360
attgtccggc agtatagaac tgaatgccat ccgcgctcta atcccagat gcagaagcgt      420
gtacagaatg tgatcagagc ttagcggaaa atgacaataa cccgatcgtc tccatccacg      480
atca
```

(2) INFORMATION FOR SEQ ID NO:476

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 421 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...421

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:476

```
ggacgagggtg caaattcggg ggcaacttttt tatatctttg tcccgagaca tttgctcgaa      60
tctcagcaaa cgaagtcttt caatcactta aaaacagaag ttatgacagt aaagcgcgca      120
gtgcgaatag cacttctcac gctgatagca ttcttttttc ctcaccttct cttgttcggg      180
cgcaaagtct ttccagaccg aacatgtctt gcaactatac aacaagatac tctatggaga      240
gtcggggcgg ataccgtcgc agagaaaaacg gcagggtgagt cggcatttcc tttttagaca      300
aactcatcaa tctnggccgc actttcctcg gcaaaccata tcgtatcgcg gtccttcccc      360
atggccgatn gactgctcgg gctatgtgtc ttacctntac tccaaaattc gacatcaaac      420
t
```

(2) INFORMATION FOR SEQ ID NO:477

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 651 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...651

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:477

```
gaattcttta tcgtctaacc atttccggca caagatcaat acttcccaaa tagcttatga      60
gcaagatcag cttcaaaaac gactattctg aagggtgcgat cctgacatac tgcattgcgct      120
gacagatacc aacttcgttc cacaagagga tacggctatg actcctattg cgaggaagcg      180
cgtgcgatga tccgcctgaa tgcaataagc ccgatgccga ggtccatttc gtatcgggtg      240
ggacaagacc aatctcttgg caatcagtca cctgctccgt ccgcacgaag ctgtatagca      300
gcacagtcag ggcatatcaa cgtacacgaa accgggtgcca tcgatccacc ggacataagg      360
tttgcacagt acctactcca ctccggcaaac tcgtgtggag catatccgcg aagtccttgc      420
ttttcatacg gacgaacaca tgtaaggccg tccatgggtc atatctccca atccacagag      480
ttgggcacac ctattctcgt catgagctgt cggatctgtc caccttttgc cgtgcaaacg      540
tctcctactc taccttgacg gtgcccgtat cggttcggcg atcatggnga gacagaggac      600
aatccgaccc tgaccgatat agccaccctg accgatggtt ctacatcggc g          651
```

(2) INFORMATION FOR SEQ ID NO:478

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2441 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2441

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:478

```
gggaaatcga ctctttttta ttgtttgtcc aatgccaaagg cacagtctgc aatttccctt      60
tctgtaccat tgatccgaac gtcggtgtaa tcacagtgcg gatgagcgac tgaatatact      120
ggccgatctg tgcaaaccac aacggctatc ccaaccacgg tagagatcgt agatattgcc      180
ggtcttgtca aaggcgcagc aaggggcgaag ggtaggggaa taaattcctg gccaatatcc      240
gtgaacggat gcgatactcc acgtgctccg atgcttcgat gatgacaata tcaccacgtg      300
gacggatccg tagatcctgt acgcgacaaa gaaatcatcg acacgagcta caactgaaag      360
accttgaaac gatagagagt cgcatacaga aatccaaaag caggcacaaa cagggggcga      420
caaacaagcc aagctggcctt acaagtgtct tcgaaattca aagaagctct tgacgaaggc      480
aggaatgtct cagcgtcagt ttcgacacca aagacgaaca gcaaatagca cgcgaaactt      540
tctcctgacg gccaaaccgg tcatgtacgt ttgcaatgtg gacgaagctc tgctcttagt      600
ggcaacaaat atgtggaagc cgttcgcgaa gcagtcaaaa cgaagatgca gaaatcctcg      660
tcgtagcagc caagatagag agcgagtcgc cgaactggag acatacgaag agcggcgaat      720
```

gttcctcgaa	gagatggtct	gaaagaatcc	ggcgtgagcc	gtctgatcaa	agccgcttat	780
cactgctgaa	tcttcaaacc	tactttacgg	ccgggagcga	tgaggtaagg	gctggacatt	840
cctccgcgga	agcaaaagcac	ctcagtggtc	cggatcatc	caaccgattt	tgaaaaagg	900
tttatccgtg	ccgaggtcat	caagtacaat	gctttgtcag	tcttggcagc	gaacaagccg	960
tgaaagaagc	cggtaagatg	gtgttgaggg	aaaagaatat	gttgtgcagg	atggcgacat	1020
catgcatttc	gcttcaatgt	ctgaagtcct	tctttcatcc	ttatccttct	cgataacaaa	1080
acacagtagc	gcattcggaa	taaccgtata	tcceggcgaa	agaaacaaaa	ccaaaagagc	1140
gggtcggctg	ttcttttgca	aagttatggt	tcaggattca	gcgagtatcg	aacaaatact	1200
cctgcatttt	tcttaagtag	aaaaataaaa	ctgcgcgaaac	aatatggcga	acaatgggaa	1260
taacaagaaa	cccgaacc	gatgcgtttc	aaccgatat	ggctctatgc	ccctgtattt	1320
ctgtattggc	caccctcttc	tttgtcgatc	gggatattac	atcccagaaa	gactcagctg	1380
gaattgagtt	tcagaatatc	gccaaaaaag	caagccttta	cgacatcgta	gtcaatcgga	1440
aagagaacac	tctcaaaggc	agggtcgatc	ggccaaggtc	gattcggtat	tcaagaaagg	1500
cgacatcccg	tcctttcaga	cagaggaaat	atctcagact	actatatcaa	cacgcaaatt	1560
ccgtcgggtga	caaattctcc	gacttctacg	accaaaacca	aattacggct	aaggtagta	1620
tgaagacagc	aagttcagct	tcacctctat	cctcattaca	tggggccact	catccttttg	1680
ctcgttttct	ggttttggat	gatgcgccga	atgaggggcg	tggaggagga	agtggcggtg	1740
gaggcggcgt	cttcaacgta	ggcaatccaa	agccaagctc	tatgacaaga	ccaatatcca	1800
cgttacattc	agcatgtagc	aggtctgcat	gaagccaagc	aggaagtgga	agagatcgtt	1860
cattcctcaa	gaatccatcc	aaatacaccg	aactgggagg	aaagatccct	aaggagcttt	1920
gctcgtagga	cctccgggaa	cgggtaagac	tcttctggcc	aggcagtagc	cggagaggcg	1980
cacgttcctt	tcttctcttt	gtccgggttcg	acttcgtaga	gatgtttgtc	ggcgtaggag	2040
cctctcgtgt	tcgcgacctt	tcagacaagc	caaggaaaaa	gccccgtgta	tcatcttcat	2100
cgacgagtcg	acgcgtagg	gcgtgctcgc	ggcaagggca	acaacttctc	cggcaagatg	2160
agcgtgagaa	tacactcaac	cagttgctta	ccgaaatgga	tggctcggct	ccaatagcgg	2220
tgtgatcatt	ctggctgcta	ccaaccgtgc	cgattgctgg	atagtgcctt	gctgcgtgcc	2280
ggacgtttcg	accgccagat	ctagtagatc	ttcccgacct	gaatgaccgc	aaagagatct	2340
tccttgtaca	cctaaaccgt	tgaagaccga	caaaagtgtg	gatgtggaat	tcctgtcgcg	2400
caaacacccg	gcttctccgg	agcagacatt	gccaacgttt	g		2441

(2) INFORMATION FOR SEQ ID NO:479

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 416 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...416

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:479

gatggagtat	ctgcacnnnt	actacaaggt	ttatatcctt	agcaacggct	tcgagaaatc	60
cagcatgcc	aactgacca	tagtggtttg	gcacccta	tgaccgagt	attctatccg	120
aagatgcggg	tatcaaca	ag	gatattcgac	ttgcactcg	tcaaagccaa	180
agccagaaag	acggaagcat	catgatagga	gatagctggg	aagccgatat	agtcggggcg	240
gccaaagccgg	tctggcatct	gtctggtata	acccgaacag	acatatctta	cctgtgacgg	300
tgtacgagca	cccatgcata	ttatttcctc	tttgtcccg	gctatgcaga	tatttctgac	360
tctcttttgcg	ccgtttttgn	tattgacaaa	agagggcacc	aaacccttca	atcttc	416

(2) INFORMATION FOR SEQ ID NO:480

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2074 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2074

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:480

gggcgaacta	cccatTTTTcg	accatTTTTgc	cattacgaag	cagattaaac	tctcttcgga	60
cgtactgtta	cgtataagag	tggtgcttat	ctgattatga	gcagaccgag	gccatgcacg	120
tggtggatgt	taatagcggg	aaccgctgcg	tggcagtagc	gagcaggaag	caacggccgt	180
cgatgtcaat	atggctcagc	cgaagaactg	gccagacaat	tgcgcttgcg	cgatatgggt	240
ggatatcgt	agtggacttc	atcgatatga	gcgaagccca	gcaccgtcag	cagtgtacga	300
acacatgggc	aaattgatgt	cggctgacag	agcgcgacac	aattcttgcc	attgagcaaa	360
ttcggcggtta	tgcagattac	gcgtcagcgt	gtcgtccggc	gatggtcac	cataccgaag	420
agtgtgtcc	cacatgtttg	gtaccggcaa	ggtagaatcc	tccatactct	tcacggatca	480
gttggaagaa	aagtggccaa	aatggtcacg	gagcaccaag	tcaaacaaat	cgttcttcag	540
tacatccata	cgtggcagca	tacctcaaga	aaggtttctt	ttcttctact	tgaagaaatg	600
gaaactcaag	tatgccaaag	ggatcaaaact	tatccccatg	agagtctggg	attcctggag	660
tacacatTTT	acgactacga	cggcaagagc	tggtatTTTT	ggatgaatga	tacagaaata	720
ttcttcgcgt	ctgctgagaa	ggcgatagac	caatttgcca	cattgccggg	tgtagggcgc	780
aagaagccct	gcgcctggct	ttgtacttat	tgcgccaaac	tgtggaaaat	accgtcaatt	840
tgcagcagcc	cttgtagatc	ttcgggaaca	tatttcttat	tgaggcactg	tcataatatc	900
agtgattccg	atgtttgtac	tatctgtgca	gccccactcg	ggatcagagt	acactctgcg	960
tagtagagaa	tatccgtgac	ttatggctat	cgagaatacc	tcacagtatc	gaggcttgta	1020
tcagtacttg	gtggagtcac	atctcccatg	gatgggatcg	gccccgggca	tttgcaaaag	1080
attcttttgg	gcacgcagta	gcttctgagc	agattcatga	ggttatatgg	ctttgagtac	1140
gacgatggag	ggcgatacta	ccaactTTTT	cctcttcgca	agttggagcc	taccggcggt	1200
cgggtcagtg	taattgctcg	aggcatgcta	taggcgatga	gacgaatat	gccgatgaga	1260
ttaccctcgg	tcgtctattc	tcaatcgtac	cgatttcttc	gactcagtca	aattctgata	1320
ttcatgaccg	accttttctc	ttcagagcaa	gtacgggtcc	gagcccttga	acggaagatt	1380
tggaactttc	ctacctatgg	gaaaatgatg	ccgaattgcg	tagagtggca	atatgctggg	1440
acctatcgga	cgcaatcggc	tgaaagaata	atcgaaaaga	gttctgaggg	tttgatggag	1500
ttgggcatga	tgcgtcttgc	atctgcttgt	cggatgacga	taagcctgtc	ggtgcatag	1560
atctgtatag	tacgatgcct	ttcatcgacg	tgtagccgta	gggttattcg	ttattccgaa	1620
taccgtcggc	tggaatagc	cgtcgagtct	ctccgcaaga	tatcccttat	gttttagact	1680
atttacgctt	gcacagatc	atcgcttatg	tgtgaagat	aacaagccga	gccggatgct	1740
gttcgaagct	gccggcttcg	agcaacagcc	accctccgcc	aatggatgtg	gcacgccggc	1800
gattattctg	atgtttgctt	tatcagttat	ggaaaagata	gttccccctg	ctgtccgaat	1860
agagagctgc	gccgcattct	gcgtgagcac	gaatacaggt	attacgttct	ccatctccga	1920
ctatcgatga	cttcgagtat	gacgccatga	tgaagcagct	gaggagctgg	aacgggaata	1980
ccccgaatgg	gatagtcctg	actcgcctag	catcgtgtcg	gaagcgacaa	aaccggaagg	2040
attcgcttcc	gttcgccaga	cagaaccgat	gctt			2074

(2) INFORMATION FOR SEQ ID NO:481

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 549 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...549
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:481

agcaaaggac aaattgaaag aaagccatcg acaagtaatg gcattgatca gacatttttcg	60
aacgatgaat tatttgccaa gggagtattc gactggacga tacttcgact ctcggtgcat	120
actgcgtatc agccacttcc agtcattcga ctgggcgatg aagaaaataa agctacatat	180
caagaccggt aagtgcgga tgcgaagttg tttgtgtgcc aaatgctctt tcttcttgca	240
gtatttatta tgggcaaagt ggcagtacag atctctccta aagagggtat ttttgctctt	300
gtaacagggg cttctcacag gtgaagacaa tggagcttcc ggatcatggt tgaaaaaacg	360
tatgaaggat agggaaactca ccgcagaaaa tcgaccgttc gtaccttgag tgaaaaacgt	420
gagcaaaacg gatgtaagcc cgtagaaatc gtcagcccga ctgacacaat cgccaagtat	480
gggaagttgc tcgttggtaa gtatcatttc cgcattctatc ggctatctcg tatcgatgga	540
gagctgaac	549

(2) INFORMATION FOR SEQ ID NO:482

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 5015 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...5015
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:482

cgctatcgat aagctccaag aaaaagaaat ctcctacacc aattgcagaa tcgaaagtgc	60
ggtatcgctt atcagtgagt tttccgcccc cacnttttca tccttcaagc atacgaaatg	120
cctgtggcat agcttcgcgc ggtacacgat cgaagcttgg caggctgctc ttgccggtga	180
tcccggatcg gcttttgccg catattggtg acaaatactc ctatcgatag ggagacagct	240
caggaatcga caagattttc ttcgagggtga tcattgctcc cgaactacgat aatgtgccat	300

ggaatatctg	acacgcaaga	cgaacaggat	tatacttcta	cagaagagcc	tgtacgtgag	360
cagtggcagt	tccgctccat	gtttggcggt	gtctcatgca	gcagggtggat	ggtgtgacag	420
ccaagactgt	cgatttcaag	ctgtaacacc	cgtagtgcct	acagcagatg	aaacggacga	480
cctcatcttt	ccaataaggt	agtgaagcat	agcaagagta	atgctattac	tttggtaag	540
atagccaact	ttgtgccagt	ggagttgggc	agacctccag	agtcgatgtt	tgcgacaggc	600
tatcgataaa	gcacggaatt	tcggctttga	cctgaatggg	ctgtcatggc	cagcgaatgct	660
ttctttcctt	ttgccgattg	tgtggaatag	cagccgaagc	aggatattcg	gctatcattc	720
agcccggagg	ttccataagg	acaatctgag	catcgaagag	gccacaaaaa	aaggtattgc	780
catgtgatga	cgggtgtaag	acatttcaaa	cattaacaaa	aacatagaaa	atagcctgtc	840
gcaagagaat	ggtcggggta	tagcactccc	gtaccgtcac	aacacaggaa	atgcttttct	900
acagatacag	aacaagatgg	gattattttc	tttcgacagg	aattggccat	tgacttaggt	960
acggctaata	cgataatcat	aaagatggta	aggctcgtct	ggacgaacct	tccgtagtag	1020
cattcgatcc	cgcacggatg	aagtgatagc	agtagggaca	gatgctcgtg	agatgtatag	1080
aaaggacacc	agcatatcag	gacagtacgc	cccttgcgag	atgggtgtata	gccgacttca	1140
aagctgccga	gcagatgata	agcggtatga	tccgtagatc	ggtaagaagc	atcgcctggat	1200
ccatccatcg	ctccgcacgg	tgatcgtata	ccttcgggta	gtacggaagt	cgagatgcgt	1260
gccgtgcgcg	actcagcgag	catgcagggtg	ggcgtgacgt	atataatgata	tatgaacctt	1320
tgggtgctgct	gtgggtatcg	gcacgcagtg	attggctccg	gagggaaata	tgttgtggat	1380
ataggtggga	gtacaacgga	gatcgccgtc	atttccactgg	gggtatcgtc	atggaccagt	1440
ccattcgtgt	agccgggtgat	gaactgacca	tgatattatg	gactatatgc	gccgcgaaca	1500
caatgtaaag	atcggggagg	tacagctgag	cagatcaaaa	tcaatgtagg	tgcagcttcg	1560
gaagacttgc	ttcaccgccc	gagacctatc	tggctctgcg	tgcagaccag	atggatacct	1620
tccgaggaag	atacccgtaa	gttataagga	ggtaggcacat	tgtctgagaa	gtccatcgtg	1680
aagatcgaag	ctgccatcct	caaagcattg	gaggaacccc	tcccgaactt	tatgccgaca	1740
tcgtaaggaa	cgggtgtattc	ctgacggagg	aggagctatg	ttgcgcgggt	tggacaagcg	1800
tctgaccgat	cgttcgggtat	cactttccaa	gtagccgatg	agcctctgtt	ggctgtagcc	1860
aaggcacggg	gattgcgctt	aaatacgtgg	acacattcaa	cttcctgatc	catagagata	1920
gtccgaaaaa	ccttcttcca	gcatgctcta	acatgcgtaa	ctcattgagt	ttatagtacg	1980
tcatacaatc	tggctactgt	ttctttttcg	gagacgtag	cctttgtcgt	actcttcaac	2040
gatagcattc	accatcgacg	cagggaaatgg	cggtagccaa	tgccttgacg	gggcgcacat	2100
atagcctacg	ggcgaagtgc	gcagttatat	gagtcctgct	gagaaaaatc	gtatgctctc	2160
gatgccaatg	cacgggttga	gttgagtagc	atttcgctca	agagactgtt	gatgcagccg	2220
tagccgattc	tgtacgcccc	ctactgttcc	ggccgattcc	ctcaatccgc	aaccgggtgga	2280
gatggactac	ctgagagcac	aggggtcaat	gcctcctata	acaggggtgga	gaatttcatg	2340
accatagata	aggacgagcc	gatggtgtac	tgccggaaat	gggtgtagt	tcggctacgg	2400
gggtggtgggt	gccgtaacgg	ctgcttcaga	tcattatgct	attgtgatcc	gatcatcaac	2460
ccgaaattca	aactcagttg	ccgactcaag	ggaagcgaag	tgtaggttcc	attctgtggg	2520
agaagcccgg	gagcaatgta	gcccagctac	cgatctgccc	cgtaacgtgc	agttagcaca	2580
gggagatacg	gtagtaagag	cgggtattca	tccatcttcc	ctgctaacct	gatggctcga	2640
cgtgtggcaa	gataaagggc	aaggatacgc	ccttgggcca	gagaaattcg	ttcaggccgt	2700
acctgtaatc	ctgtctgccc	acttcggtag	gctgacggat	gtgttgtgat	cctgaacaag	2760
atcgatatag	agaggcaaaa	gctggaggag	gaaacggcat	acccaaaacg	gaggcttact	2820
gatgattcgt	gagataaggt	tttcttggca	gctgtgctgc	tggttctgct	acaggatatg	2880
gtgttcaact	aatattttct	ttcaaagtag	ccactccttt	cgtctatata	tatactctga	2940
gctgttgccg	ctgaacgtgt	ctgtttccgc	tctcttgtgg	cgagcattct	aataggcatg	3000
ttcctcgatg	tccttagtg	agtacccggg	ctgcatgcgc	atcattgacg	gctacggctt	3060
tcgtccgcaa	cgggctggca	cgctcttctt	ggaaaaggat	tcggacttgg	ggtattcacc	3120
gtcggcacgg	aatctgaagt	cggatatatat	gtattcgtgc	tggagcttac	catcatacat	3180
catctctcct	tttcattctg	gactcgtgga	gcctgtcgag	tgtgcccgtat	atgcgcttcg	3240
tacaggagca	agcatcctgc	tgacttatct	gctattgctt	atgtgaactc	gcttttcggc	3300
aagagactca	aaatgccaga	aaatgagtaa	acgcggaaag	atcccaacga	aaaacatcgt	3360
ttcctattgg	tgatagccac	ttctgtgtgg	tattcatcta	tgcgatacgc	cttttctatt	3420
tgcaaatcct	agtccgaact	ataaggtctg	tgccgatagc	aatgctttct	atcagaagct	3480
gtatatcctt	cgcgtggcgt	gatatacgac	cgcaacggag	agctcctctg	tataacgaac	3540
cggcctatga	ccttgtagcc	gtgacgaaag	aggtagggaa	ttcgacaccc	ttgccctgtg	3600
tcagaccttg	aatgtggagc	cggagttgta	cgcaagcggt	ttcaggacat	aagggatcgt	3660
cgtatcaacc	ccggcattcg	ccttacgtac	ctcaactcct	gctggcgcaa	ttgaaccctc	3720
gcgagcggga	cgttttcagg	agcagctgtt	caaattcccg	ggcttttcca	ttctccccgt	3780
gccatccgct	aatataagta	tcattggagcc	gcacatgtgc	tggctatctt	tccgaagcga	3840
atatgcgtga	cttagagcgc	gacagctcgc	tatttccggc	gactatgtgg	gtagaagcgg	3900
tatagagcgt	cagtacgaga	aacgctccga	ggcgaaaaag	ggatagaagt	cctgcttcgt	3960
gacgctcgcg	tcgtatcaaa	ggacactact	ccgatggcaa	atagcattcg	ccggccatcc	4020

cggacgcgat	ctgacccttt	cgatcgacag	caagctacag	acactggcga	acagctgatg	4080
cagggaaagc	gcgagctat	agtaatgatc	gaaccgagac	gggggaagtg	ctctgtctcg	4140
tctcttcacc	ctcctacgat	ccctcctact	tgccggtaag	gacaggggga	aaaatcatct	4200
ggagatggaa	catgtcgaaa	caagccccctg	tatgcccgtg	ccattcaggc	cacctatcct	4260
cccgtccac	tttcaagccg	gcacaagggg	ctatctttct	gcaggaaggg	gtatcaggcc	4320
tacggatgct	tttagctgtt	atcacggttt	ccctcccctg	acaacagacc	ggcctgtcac	4380
agccacggct	ctccactcag	tctggtgccg	cattggccac	cagctgcaat	gccttcttct	4440
gctgggggct	ccgtgccatc	tggataacag	gcggttctat	ccttccgttc	aggaggcatt	4500
cgagcattga	aaaaaacaag	agccgcacac	gggggcgcgc	acacacgcgc	acacgagtcc	4560
ccccggagag	acgagacgat	atacccaaaa	caaaaaggta	caacaaacgc	ataaaaaggcg	4620
agagaaaacc	cccacaacaa	tatccacatc	gagaggcaca	gcgaaaaatc	agacccactc	4680
cgctccaaat	agccaatctg	ggtgcatcat	tgccaacagg	ggacgctatc	gccgtccgca	4740
tgtggtgaaa	gccttcaggg	gatccccctc	gatacagctt	atacgaactg	gcagaatagc	4800
ggatcagtc	ggcgaatatg	gagtatatag	tagaaggaat	ggcgagagcc	gaacgggagg	4860
aacctgtcat	gcagccaact	tcgccccggg	ggaaatagag	tatgccggca	agacgggtac	4920
cggccgagaa	tcctcacggt	aaagaccatc	ggctttcctt	ggctttgccc	ctgcaacaat	4980
ccgaagggtg	tcgtatccct	atgtggagaa	cggcg			5015

(2) INFORMATION FOR SEQ ID NO:483

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1295 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1295

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:483

gattcggagg	gagtcagaca	taagtataac	attctcaaac	aggccaaaga	aactataaag	60
gcaacggatc	gaccgaggac	gtcatcactt	attttgga	ttggagatgc	taatggccgt	120
tgggggaatg	cttcaggcgg	cagagttggg	atgctgatca	tcgtggatgg	attcatcatg	180
accaattgcc	tccttgtgca	tcgcagttct	atcccgaagt	ctgcgactat	gccgtattcg	240
gtcacgcggc	gacgaatcgg	ggcatgcacg	cctgctggag	tatatgaagg	ccaacctctt	300
ctgaatctgg	ggcttcgctt	gggagaaggt	tccggagcgg	tgtctcatc	cccattcatg	360
tatcgccgt	cagcatgac	aacgaaatgc	atcttttgct	caagcggctg	tgactaagta	420
tttctaaaag	ttcatgaagg	aaagcaggca	aaaccatata	agcgaatatt	ggcagcattt	480
atgctgctca	acgcttaccg	ctgtggcggt	tggtgagtgt	ccctgatgct	gctttcaagg	540
cgccaccgat	tattggagtc	tggtgggttg	gcttacggga	ggactgatgt	tctaattctgc	600
cacttgggac	tactgatcga	ccttcctgtc	actatggcgt	ttcccttgca	ctcctctctc	660
gcgttctctt	tacaggggct	ttccatagga	tggattgggt	gatttcttcg	atggattcgg	720
tgcagggcga	accaagagcg	catcttggct	atcatgaaag	attcgcatc	gggtacttat	780
ggtatctgtc	cttcatcttt	tacttcatga	tagggatcta	ttctctgtct	tcttccctcc	840
gatacctgacg	cttgtcgcat	taggtgtggg	cgatcctctg	tgaaattggg	ggcctcccag	900
ctcatcaata	cgcttcccta	cgcccgttcc	gggatgagag	taaggtgcaa	gccatataca	960
gtccgatggg	tgtcttgact	tttgggtctc	attctctgcc	ggagctttac	ccttggccct	1020
cttcttctcc	tcccttattg	gccggcagtc	ttgatcccca	ttttggcttt	cctcttgccg	1080
gcggctcttat	gaagcggaa	ataggcgggt	atacaggcga	ttgctgcgag	ctacttttct	1140
tctctgtgag	ctgtcttttt	gggtaggaat	gcttatatga	ataggatcat	agaattggta	1200

agatgcagat tactcttcat ccgcccacga ctccggatgt ccctgccgga atatgctacg	1260
ggcaatccga tgtaccctac ggcttccctt gaaga	1295

(2) INFORMATION FOR SEQ ID NO:484

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 556 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...556

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:484

gcaagatatc caaactttta atcgggagat tatcgctaaa ccatatgact aaaaattgag	60
aaggacgatg tgctgaacat ccttgtcagc agtagagacc ggagctttca acgccctaca	120
accaagtgtt gaccactcgt gcactggccg caacggctat ggaacgaact cgaacgaagg	180
cttcctggtc gattcgaagg gtacatcaat tatcctattt taggccagat ctatgtagag	240
ggcctactcg taccgaactg gagaaggaga tacagaagag gattatttcc agtgatttat	300
caaggatcct acggtaacgg tgcagcttca aaatttcaag gtgcggtttt gggagagggtg	360
aatcatccgg gttcgaatgc ggtaaaagga gacgaataac tcttttggaa gcgatcggaa	420
tggccggaga cctgacaatc ttggtcgccc gcgatcgggt ttttgtgatt agagaaaccc	480
gatgggcatc cgaggttttc cagacggatc tcagaaaggc ccacttgctc gcaagccccct	540
gtactatctt gcattc	556

(2) INFORMATION FOR SEQ ID NO:485

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1667 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1667

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:485

tacaattaca	aatcgactgc	tgagagttcg	gcaaatgcct	gttgatagtg	cgttcggcctt	60
ccatcgccccg	actgacggta	tcgtagtaga	gtccccattcg	acgatatagtg	ccagcaagga	120
gatctctcct	gcatccaatg	ctttcttagc	aggtcggcat	tgtcggaggt	cgtcagcagt	180
ctgcgataat	tttccgcgtg	gtcttttagcc	cggcggcacg	ttcgtacagg	agctgaagct	240
cgtgatagc	tgctgccgac	tgctccgtctc	acgcatttct	gcggctctga	ccgagctttc	300
gcttgtttga	cgcgggtttt	gttttccac	agaggcacgg	atatccgaaa	gatactccct	360
gaaacctttc	gctcccgaact	ttctcgctta	caagccggca	gagaaaaaccg	gcaatcctgc	420
tgctcggctc	aatgctacct	gtgcttgctt	gcggccacct	cttctcgggc	atatgccaac	480
tgcggtattct	ttccgctacc	tgatcgaacc	atacagagaa	agactgcggt	agcacgatcc	540
cgtatagcgg	ctttcgtcga	atgcgatctc	tttgccctccg	ttcaaccgtc	gagccggacg	600
agcagagcct	ttcgatccac	ctgcacgcgg	gatatttacc	ttcgacggag	gcgaggttca	660
gcttgatctt	gttgatttcc	aactgggtgg	atcaccgggt	ttgaggcgcg	cttcgtaccc	720
ttcggcaatg	gtgcggcatg	tcggagccga	cgctccaatt	cgagcaaaaag	ggctttgttg	780
tatacaattc	gatacagcaa	gtcttggcct	ccagcaggat	gttcattgca	tccttttgta	840
tcgccagtcc	aagagtttgt	cttgcatctt	ggctgcacga	ctttcatacc	cgtgatagta	900
ggaatatcga	cactctgcgt	aatgctgaag	tcgtccgatt	gccgatttcc	gcagggtttc	960
cccataggta	gccgacctcc	cttccggatt	ggacaggaat	attccggtgc	ggttgttcag	1020
tttttctgct	ctgtgctctc	tcgaagagct	ttcaacgcgg	tattgttctc	ttcgaaggat	1080
gcagtacatc	attctatgccg	ttttgtgccc	aaacgggagc	agtcaccaa	aggccaatat	1140
gcttatgaag	attgctttca	ttcttttttc	tgtcttctta	ttcgattgtt	agttgtcgat	1200
ttcgaaacgt	cctttctcga	tagctttgtc	ggtcagcaga	tacataatcg	gaacgataaa	1260
agcgttgaga	atggggagga	aaacaatccc	ccgagtatga	ccttcgccat	cggactctgg	1320
atccgttgcc	cggaaagtctg	ccccccagtg	ccagcgggat	aagagcgagc	ccgatgtaag	1380
ggctgtcatc	aggatcggat	tcagacgatc	cagcgaacct	ccaggacact	ttcgtatggt	1440
gaaaggcctg	cttgctgcaa	atcgttgtaa	gcgaaatgag	cagcataaccg	ttgcgcgtgg	1500
ctattccgaa	caggagagata	agccgatgat	ggccggaata	ctgataatcc	cacctgtgaa	1560
gaagatggaa	agacacctnc	gataagagcc	aaaggcagg	tgagcaggct	gacccgcgat	1620
tggagagaga	ctttcgggaac	tgattgaaaa	agcagccang	aaagata		1667

(2) INFORMATION FOR SEQ ID NO:486

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 685 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...685

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:486

gccgggtttcc	gtctggtaca	ccatcaggag	ttcgggtacac	gaatgacgct	aaggtatcca	60
tactcgccaa	gtatgggccc	ctgaacttcc	gcgctacgat	gctaaccggt	ataagactcc	120
cacgctgaaa	gagctttttg	cacggaagaa	ctcaccacta	tgggttcgca	caatctctat	180
ctcggcaatg	cggatctaag	ccacagatgt	cggattatta	tgctttgggc	ttggagtaca	240
atcaagccct	atctcgttca	gtgcaacggt	ttatgacaat	gaacttcgca	atctatctcc	300
tttatggata	taccgacctc	acccgagcac	gaagctcagg	gaacaagaaa	accaagcagt	360
atgccaacat	aggaaaagct	cgcagccgcg	gcttgatgtc	ctatgtgatg	cctctatcgg	420
ttgggggtatc	aagttaggag	cggatacagc	ctcgtggaag	ctaagaatct	ccagacggat	480
gagtggtctgg	aggagctgca	cgctatcgtg	ccaatgtgca	cggcgattgg	gttcactacg	540

gggtcagtat agacttggcg tgagcctttt cggccgtatt cagagcgacg ttactacaaa	600
gacggcaatg ctccggacta taccttgtgg cgactcgac atcgcatcgt ttcgctcatt	660
tccgccacat catcctggat ggaac	685

(2) INFORMATION FOR SEQ ID NO:487

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 401 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...401

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:487

tggatttggc acgtctatgc ggcatgcaac cggctgcagc cctcatagaa ttatcaatga	60
ggacgggtacc atggcacggt tgccacagct atgggaggct ccaagcgttt tggactgaag	120
atcattgcca tcaaagatct gatagccacc gcctcaaaca agaatccatc gtagaaaagg	180
gtgtagaagt ggatatacta ccgaatacgg acacttccga ctcatacctt tccgtcaaaa	240
atccatggac tggagcacat agctttgttc aaggggacgt gggacgaaaa tgaacgatac	300
tcgttcgtat gcactcatcc tgtgccactg gcgacatatt cggctctatgc gttgtgactg	360
tggcggccaa ttactgcaag caatggagaa gacgagaaag a	401

(2) INFORMATION FOR SEQ ID NO:488

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 529 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...529

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:488

gcgtgataag gctgcggtaa tactcgtgtg tggagagggtg cttggcgagg accctcttac	60
acctcttttc agcccgtact tctccatgtg ttcggcgtgg tctcctgata cctgataagg	120

ctggcacggc	tcatacctc	gtccgcaaga	ggcgtggggc	aggtgctttc	gtcctgtacc	180
tgcgccttgc	gttctctcct	tcttctgctt	cctgcgctcg	ccctgcacta	tcggcactac	240
ggtggatgga	tgtgcggcgt	ttcctcgtcc	atgtgcagca	ctgccgatac	gaggtttcag	300
ctccgtaggt	ctctctcagc	cacgccacgc	tgtcatcgca	ccatctccga	gcctcccttc	360
gtcttccatc	cgtgccatat	cctcgtgcgt	tcgctcagca	cgatgccgta	ttgcctgcac	420
ttggttcttt	ccaatcttac	gttcaatccc	gccgtgtcaa	ggcgggtggcg	tatggctaac	480
gtgcggttgc	cacgccgtcg	ggaaacatta	ttaactcacg	gtttagatg		529

(2) INFORMATION FOR SEQ ID NO:489

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1249 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1249

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:489

catcagagac	cctccttgaa	tatcgtttga	tttgcacgct	caccttgccg	agaaggctcc	60
gaacaggctcg	gctatctcac	aagccgacat	ccaaacagag	ttgacgggat	atgtacattt	120
cccttccccat	ctatggttat	agttcctttt	tcatagttgt	ttagtattca	ttgttctttc	180
gtctttccat	cagccttcca	tatcctctga	gattttcttc	tccgaaatct	tcgcatagtt	240
ctgcggctgg	taatggaagc	atgtcccatc	atcttggtgaa	tgctttccgt	acattacctt	300
ccgagattaa	gaacgatccg	aagctatgcc	ttgcttgatg	gtagacaggt	tctccttgcg	360
tccgatgatg	acacccagtt	catgtatttc	aaccacatca	tatccctgct	tggcaaaggg	420
aagacgggtt	gtgtgtcatc	ttcgtgttgt	atagattgat	aatctgctcg	gctatcggat	480
gcaggggaat	aatgattcta	ctttcgctct	cctgcgggta	atccgtatat	aacgccgtcc	540
tcggccgtct	ttcctatgtg	gtgcggatat	agcaattgcg	tatcaacaag	gcaagccccg	600
taaaacagga	gaagatgaaa	gtccgctcgag	ccagttcttc	aacgggtcgt	tctgtggcaa	660
tttaagttcc	aacaactggt	tcagttcgct	ttgctgatgt	gcatacgctt	ggcagggggc	720
ttcttctcat	attcgcttct	tctaattggt	tggctcggtt	aatctcatgg	tcaacggcaa	780
ggtaaccaat	cggttcagcc	aacaaaggca	atggttggtc	tgcgatgctc	cgagtttttg	840
tatctgtttca	gataaacctt	gtattcccgt	ccgaactcct	cgtgatgtcc	aagaaagcaa	900
tgtcgctcat	gccttttgac	tccaaaaact	ccgaatataa	ctttggtaat	atcttgaact	960
tctgtatgtg	gagtttgagc	tatttcgtta	gctcttactg	caagacgttc	tcgctccctt	1020
tctcccatcg	gagtaaataa	atgggaacta	cgacatgtcc	cgcaatttca	tttttcaaag	1080
ttccgcactg	acaacaccat	atctcttaag	gagatcctca	taaagccttc	cgcatactg	1140
cggaaatttct	tcagacgggt	gtttgccgtg	catctgggtc	tctgcatttt	tggcgttcca	1200
ttggtggggg	tgcaggaaat	gccgtgtaat	gacgtgttct	ttccgtcat		1249

(2) INFORMATION FOR SEQ ID NO:490

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1081 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1081
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:490

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gggtgtgaag atcgtatcgg ccggtataga gagggagagg acttcacrg ctgcaaaccg      60
aggaaaatgc tcagggacat ctccgctccg cgcagggcgt acggctcgaa agaattgccg      120
aagaagccga agcgtagctg atctccaggc tcgcaattcg ttttcggaca acttcccgat      180
cttctttttg gcacgcccac ttcgaccagc ttcgccgtgt tacggagggtt ggtctccgca      240
ttgtttactc ttcccggtgcc agcagggccg aaaagtaatg atctatacag cttagctcac      300
ctcctccgta ttggcgacga atcgccggcg agcctcttcg taagcacggg ttctatgcgg      360
cgactccatt tcatttcggt cagtccgaag agggttggct cagggtcagg ctgatcggtg      420
cgctcatgaa atgcctgtca gtccctccgt gccgagcggg ttgatatgct cgagcgaact      480
caccaaagag gcttgccacc cgtaagccat atattctgat ccacggatat atgtcctgaa      540
ggcgagcagc attggagcgg acgaagctgt aagagccgtc cggctgctat agagcgaata      600
ggcacgcctg tagtccggca gtgtggctgt caagtccctc cgggcagcaa ttctgcccga      660
taggtgccc actgccagta ggccgcccga gctcttgag tgccacggct gcatccacgc      720
tctgctttcg tgccaccgga ttgcttccgt gagggacaaa ggggatggat ccgcggcggc      780
aaccgctgtg ccgaaacctc gctccatgga gtcggaccca gggaggcgaa gcaagggaga      840
ggaggaaaag gctttttttc ttcatctttc tttcgttttt atgcaccttt ccgacagcaa      900
agtttatgcc gctaccctta aaaggctgat atatgcaagt tttctccgat ggcgaaagtgt      960
ccgactgttc ggaaacgaac cccgaactgt ccgaaaacgg acagtggaca cttcggccaa      1020
tcgaataagg actgataatg agggcagggg attgtttggc atggcatttg ctcttcggag      1080
g                                                                                   1081

```

(2) INFORMATION FOR SEQ ID NO:491

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2015 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...2015
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:491

```

ttatactccg tcggatcggg atgattcagt agatattgca gatcggcacc gctcggctac      60
cagcggcacg aggataaaaag ccaaagtcgg agtgcggtatt tgcccgatcg tccggcctcg      120

```

gaagcggcat	cgatgaagag	gtcgatactt	tggttcctgta	ctcgtaccgt	ccgctcgtgg	180
ctatcagtaa	ggtatcgag	gcagttgctt	gccggtcaga	tgttccgcta	cgtggagcag	240
tcgcttcgag	cttctgcacg	tcgcctctcg	tattcttctc	cttgtggcac	gaagtcgggt	300
cgaatccgtt	gggcagtacc	atcggatcgc	gttcgagcag	ttgcggcatt	ctttggccgt	360
gagttcgctt	accgtggcaa	aggtgtccga	ttgtgagccg	ccgctttttc	tatcccgtgt	420
ttggcttcta	caccgagttc	gcagccatth	gacgcgcgtt	gtagcccggc	atgtaggcat	480
acagagcttt	ttattgccgg	cgatagaccg	ccctgtgggtg	gtggcatgtg	tgaggaaaag	540
gttttcagac	gaggtgtttt	ccgcttgctg	tagaggagtc	ccatgccggc	atccattcgt	600
tgaatatacc	tatggccggt	tggtcttcgg	ggcagagtat	tcacacaggc	tatgcatcgt	660
ttgggctgag	gcaatgccga	agagcggggc	tcgtcatagt	cgcgtacccc	cttgtcgctt	720
tggatgccga	agtgtccccc	atctcatagt	agagcgttgc	ttctgtgca	tggaggggtt	780
cgaatccacc	agtactacag	ggggagaacc	gggagttcgc	cagctgccgc	acaatatcgc	840
aagtcagcag	aggggtgctg	atcacgatgc	cagtcctcca	agtggcaggg	actgtattct	900
caaaatcggg	gggtaagtct	tcctgtctcg	tagcaggggg	cctatgaaaa	tgatacgtcc	960
gtcgtggcgt	ttcatcatct	atgtgccctc	gatgtaagca	cagtgtatat	accaccctgc	1020
ttattgcaac	ctcccagctc	gtctccagca	agaggggaagg	gttggggcga	aaatcattat	1080
tcgatcgcaa	ttcgtttggg	aaagtthttt	ccggtcttat	cctccgacaa	ccgccataca	1140
aaagccacgg	ctacggtcac	aacgaaacct	gtggcagcgg	aatcaaggct	gccagcagcg	1200
tccattttcg	gctccccgct	tcttttatat	gttaaacagg	gtgggtgctg	aaggattgtg	1260
gagtaggcag	aacacatgag	attgatacct	gtcagcatag	tccaaccgcc	ggcttcgaac	1320
agtgtgccgt	ttcggctgtg	ccatcggtct	cgaacatgac	gccggcaccg	gtcctccatc	1380
tattcccgtg	gtcaggacag	tcagcatcag	tatcgtcggg	acactatttc	attggccgga	1440
atggccaata	cataggccag	cagaatgaca	cgttgagtc	catcagccaa	ccgggtccgt	1500
ccagcaggtc	gatcagatat	cggctatccc	gactccaccg	atttggtatg	tgcagggtgag	1560
ccagataagg	caccggccgg	cgcggcaaag	acaacggcac	gccacaaaac	gacgagttac	1620
gggtctacgat	ggattttatag	atcgtctgcc	aaaactgtgg	cgggcgtagg	gtggaagctc	1680
cagattgaac	gtggagacct	gacctcgcag	cagcgcgggg	agagtaccca	agagaagaaa	1740
aacatgaaa	cgataccag	caatcaatgg	ccacgactga	cccaatgccg	atcacgccac	1800
gcaaataggc	cggacggcag	gtgtgaggaa	gatcgtggca	aggagtatct	gtgtaggcca	1860
accccgttac	acagagagaa	gttgttggtc	agaatagcta	tcagtctctc	ctttggctat	1920
cgatgatgag	cgtattgatg	attgctgccg	cattgcagcc	aagccccatc	tcattggtcag	1980
agcctgcttg	ccgtgcgcac	ccgaacgaca	agggg			2015

(2) INFORMATION FOR SEQ ID NO:492

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1167 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1167

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:492

gcaacttttt	ggaacaaatt	gtttcagaag	tatattggaa	taataggcaa	aaaacgaagt	60
cgcccgaact	ccttaaaagg	aggtcgggag	accgattcta	ctctgagaca	attacagacc	120
tatcttaaaa	gtgtctgcac	aaagtctcga	gtccaagaca	gatttacttg	atagcgagtt	180
tctctacgta	agacttccgt	caacgacaac	cataactgca	tagtagccgc	cctgagccgt	240
gtaaaaaacc	tggtgcgacc	ggctgccaga	cgacgaccgt	tcattgtcgt	gatctagctt	300

cgcccttgga	agttaccgtg	atcgctcttc	ctacaactgt	cagggtgtaag	gcttctgagc	360
cgttacgtct	gccactccgt	caggaatata	atcacacaaa	ccttcggaga	tacgccggct	420
gtgtacttaa	cttccacga	aactcatgag	attgtgca	cattcctgca	tcgcggtagg	480
tcgtttcggg	agaccttct	tgatcttcgt	gccgtcacga	tagactgtat	aggtatagct	540
gcagggtgaat	cgtcttcgac	ttccatatca	gttccatctc	ccattccgcg	cgacgcacgc	600
tgaaggtgt	acttcttgcc	tgcttcgaat	gtgaaatgtc	ataacgtgca	ggctgggtgc	660
ctccatctcc	tcgatccac	atctttcgga	tgcaggttcc	gggttcgtaa	tgcaatagtc	720
gtaaacacca	ccgggattac	aacttcaccc	tgtcctgtaa	cgataatatt	ctgtgtagta	780
acaaaggatc	ggcattggcc	gggatcaaat	actcgaagtt	cgactgtaa	agatggaaga	840
agctgttccg	gtaaagagag	gaccgggtgc	cggaatgaca	ctccgaatgt	attgtgatcg	900
gcatccaaca	agaactggta	acccgtattg	ttccccatac	gttgcttgcc	gcaagcacia	960
ccttggtctc	gttggcacgt	catcgtttgc	aggttcgatc	gtaacgaaaa	gaccgtctcc	1020
gatccgttta	cttcacggga	accttctgcc	ttctttgcgc	tcggtgcttc	ccacttgacg	1080
ttactttctg	accctgcgtt	gtagctgtca	agttggaaac	gggctggagg	ggctaggctc	1140
acctacctga	atttgcttga	tcccagg				1167

(2) INFORMATION FOR SEQ ID NO:493

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 534 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...534

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:493

ggcatttcaa	aagcgataaa	cagcccttac	aatgaataaa	aaagtaccca	gctgtcagtc	60
tccaccgttg	tgtaccgaaa	aaagttgaca	gttggggtag	cgggattcat	ataagtttac	120
acacataccg	gttagtccta	tgctgggtta	caactgtcga	ttgggtatttc	cccttaggtt	180
tacacaagca	gatttaccct	ttgctcggga	ttcattcttc	tgtagttgta	gagttccgga	240
gcaatttccg	agcctctctt	tgttgtgtat	ataaagagag	agatttgtgt	atatcgga	300
tatatttccg	tatataagaa	aatttatcgg	agtatatagc	aaatatattt	ccgcatatgc	360
ggaaatttcg	ccaccttctt	ggtgcgataa	aacgctgacg	ctgaactact	tggcatcgga	420
ggcgagggtat	tcttcgagga	tcgaaggcgc	tccgaattgc	tgagatgttt	tgacattttt	480
ttcttggttt	tcgcacaccc	caactgcaac	ttttttcagg	ncacgacagg	atca	534

(2) INFORMATION FOR SEQ ID NO:494

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 577 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...577

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:494

```
ccttccatt 60
gcctcctcca agagctccac acaagatata gtccgaagggt cttcttggta ttcttaaaga 120
gtgcatcggt tcagaaaaag acgaacccaa atcagaagaa agtggttccg gaaatcctga 180
aaacacgcgc gaaaaaattt cgttttggtt cgggaacaaa aaaattctcg aacccaaacg 240
aaaaattctc agaccacgtt ttgaggagct atactcggca aaatttacga acgaaaagcg 300
tgcaagatga gtatgcccc tctcgtgat tttgtatcgg aggggtagag agttttgtca 360
gagggttggt ccatctaaac caaacggctt gacacagagg actgaggtcg gtggaaaatt 420
gccttacttt tgggtatagc ccgccaccgg attcggcgaa gaaaggatct gcaaatggat 480
ggtttcgcag atcgttttagc ttacgggttc gaagtcgagt tgctttctgt ccagattggg 540
tgggcaacac gttacggtga tggcatcgcc cagactg 577
```

(2) INFORMATION FOR SEQ ID NO:495

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 435 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...435

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:495

```
aggctttacg ccgaaacagt gtgctttctc ataggccatg acggcgatgc cacaagagcc 60
tcggccgaaa ggttgtgatt gatcagcgta tcggccagaa gaggggcccg ttcttcaggc 120
tgaccatatg catagtggca aagtgcgac gccctcttgc aggcgacag tctgcttggc 180
cacttcgcc agatagtatg cttgctgtat atgcccgatga tcatagcatc ggcatcccc 240
aagcgacat catcataccg aaatagttgg ggtcgaacat cttgtccagc gcttggtatg 300
attgcctccg cgccgccagt tctgttcggc aaagacacgg gcaaatgatg accggcgagc 360
ctttttcttc aatcggaagc cggtaattha aagaattttc gataccctt ccaaagatta 420
aattcccaac tcttg 435
```

(2) INFORMATION FOR SEQ ID NO:496

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 568 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...568

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:496

gtatcttttt	tgtcctgata	taccgtagcg	atcagctgat	acacgtcgtc	tgacgatagg	60
gaacatcctt	gatcttggtt	cagatctcga	gcgttctgcc	aagtcattgg	cctgataggc	120
acaaaccgcc	gagaagaacc	ctaccatata	gagttggaat	cctgtgcaga	gatttcggga	180
acagcagcaa	acatcgagc	tccttgattt	gcatgaactg	atcgaaggct	tcgagagctt	240
tcttaagtct	ttcttctcca	tgtagtaacc	accggcattg	atatagtaaa	gatgttacct	300
ttgagagatt	ccatgatctt	ctttgtgaac	ttgggcttta	cctacccttt	tgatcaggca	360
tattgtccaa	ctggtcggcc	ttcaaataaa	acgcaaaatg	cgcagcaaag	catcgttcat	420
catagcacga	tccggctcct	gttcacagtt	tgcttgagat	tctctggatg	taaagagtct	480
ctcttccacc	gaccggccac	aaaccaagtc	ttggcatcgt	tcatcgctcg	gggttcttct	540
ggcttcaccg	atccagcgta	cgagctcg				568

(2) INFORMATION FOR SEQ ID NO:497

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 712 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...712

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:497

agcaaatcag	atctatttgc	cgatggtaga	tttcagacct	ttcaagggtcg	taaatcgctg	60
cgtgagctta	cgcaggcacc	tgccggtgcc	ccggaagagt	atatgaatat	gtctttgtgt	120
acgaaaagaa	tggcaagcga	caggagtcga	tatggatcat	ctgcctgacg	acagctggac	180
atacgtagat	cggcacagaa	actgattaaa	aaaggctata	cacctcccgt	cactgacttc	240
cttttcttcg	tgggggtgaa	gatgttacat	ccgaaatcgt	caataaaaaag	gggatactct	300
cttgctcctt	tcacccgatt	gggagaatgc	aagcgacgat	aagtggacaa	tatcagttag	360
atgtatgatt	atgctcagga	acatgcttgg	gattctacgg	cgtatcggct	tccacttcgg	420
atgatatttc	cacatggcga	tcaataccgg	tgctgattac	cpgatgcttt	tcctcgatgc	480
tgttaccgtt	agaccattac	aacgcggcaa	tcctctcttg	gttattttgc	gggatggtag	540

atccgaggca aggttagtga tgcgaatttc cccggtgtgg gacaagccaa gcttttttcg	600
atcgttatat aggcaatgag ctttatcaac cttcttatgg ggaagggtgc ttgtattggc	660
tttgtgggtt attctccttt tgttcgatgt attcgcaagg tcgttttttg ca	712

(2) INFORMATION FOR SEQ ID NO:498

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 498 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...498

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:498

gaaccgacga ggagaaagaa ccaaaaaaga atcgtttgtc ttgtcttctc ataattatat	60
caacgttggtt aggagttata caataacatc attcgccatg cggcagcagg cttgcagcgt	120
atgtatccac tggcaagcaa cgagaccgcc gtttccgttc gcaagcggct ctcaccaaga	180
gaaacgggtg caaatcggca agcaaggcgg actccacttc agacggagag aagtctcctt	240
ccggcctatt agaatcagta catcctgtcc tacgtggtag aaatccgacg gatacctcgg	300
ccttgggtta tttcggctcg aacagcttcg tccacataag cgaaagacga acagctgtct	360
tcggagtgtc ggcaattaca gtttgtatgg ggtattgact tgaatcacgg gaaaaggagg	420
ctttgagcga ctgcttcac gactaattgc gatgcgcttc caagcggtcc gcttttgata	480
ccgcctacgc cggaatgg	498

(2) INFORMATION FOR SEQ ID NO:499

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1192 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1192

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:499

gagataaaac	agggtgaaga	gccagaactc	tttgcgacgg	gcacggccct	gaagtctaca	60
tattttgcgga	gacaaaagtat	gaaccaacgc	atagctgaaa	ggataagaag	ggggagagag	120
ttatttcacc	ggcaaaaaata	tatcttttgg	cgggtagata	aaagctgtga	atataaatct	180
catataacgg	tggccgggat	tgaccacaaa	aaagcctgtt	catgctttgc	cgatagggca	240
tacatgatag	gcttttgtct	ttacagtctc	tttgtggcga	gactctgatt	atcgtctata	300
gagacctttg	aaaaataagg	agggtggagg	aaaagggtggc	agtaggagtg	aaagtagttg	360
taaatccccc	ttgcggagct	acttgcacga	gccctcaagg	gtggttatgc	cttatectac	420
ggatgaggac	ataattatcc	cggcgttctg	cataaattaa	agaagacctt	tgacacggcaa	480
ttggcgtgca	aggctctctta	tatctgtaca	gacactgaaa	atcagtcaat	tgacaatgaa	540
tctccggaaa	atgccgtgcg	acagtctcat	ctatcgggtt	acagctcgac	ggacctccaa	600
ctcccngaac	ctgccatccg	gcagagagca	gatagcactt	ccatcaatag	accatagtat	660
cctctcatat	gagaccatag	tatccttcat	gtgagaccat	agtatcctct	catatgagac	720
catagtatcc	tctcagttag	accatagtat	cctctcatat	gagaccatag	tatcctctca	780
tgtggactat	agtatcctct	cataggagac	catagtatcc	tctcatttga	gacatagtat	840
cctctcatat	gagaccatag	tatcctctca	tgtgagatca	tatatcctct	cgtggaagtt	900
cattctttgt	atctcaagga	aagatcaatg	atagggtgat	ggctgccaa	tgaatagaga	960
gcagtgcccg	aatacgttgc	aatcgataag	catatcgact	tggttcgaaa	atacattccg	1020
tgccttccct	atcgattcgc	tgacatgacg	tccctgaacg	aaacctcttc	gtcggatgtt	1080
ttccttgtcg	tgccatcggt	ttgtgtcatt	gatcatacca	taaacaccaa	aacaatcggc	1140
cgacacacaa	taaaatgaat	ggataaatgg	ataaaggcct	gcttattgtg	ca	1192

(2) INFORMATION FOR SEQ ID NO:500

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 521 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...521

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:500

tgccctccata	ctcttgcaag	aatactccac	aacagaatta	ttcattcata	ctttaacata	60
tcaataatta	tgaaaaagtt	tttcttcgcg	ctactatcat	tggtatttca	gcgcaggctt	120
ttgccaaagac	ggacaacgtc	ccgacagttc	gctacgagta	cacaatcttc	agaccgtcac	180
ggctctattct	acacgccggc	cgtacctctg	aaaaagatac	cggccaagat	ggaactcatc	240
tcatccgcaa	catcaagcag	tccggcttta	acaacatgac	cgacatcctc	aagagcaaag	300
ttcgctcgat	gtcatacaat	acccgggctt	tagttcgaac	atcgtatccg	cggtttcaag	360
ccctccggca	agtatgtaac	cgtattggta	aaggcatccc	tgcggggaacg	gacaatatct	420
ctacgctcaa	cacgagcaac	acgaacaaat	cgagatcctc	aaaggcccgt	tctcttccat	480
ctacggcacc	atgccatggg	cgggtgtggtg	aacattcatc	a		521

(2) INFORMATION FOR SEQ ID NO:501

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 483 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...483
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:501

```

cccccgtaggt gacatcctgc tcaatataga ttcggaggaa gaaggcaagt cttcgtaggc      60
tgtgcgggag gtattgatgt caatgtcacg ctogaataaa ggaggaagag ctggtttcgg      120
acgaagaaat aggcgtaaag atatcttgac aggactcaaa ggaggacatt cgggtgtcga      180
tattcacctc ggacgtccaa tgccaataaa ctgatgttca gattcttgaa agaggctgta      240
ggatttatgg tgctcgcttg gcatgggtag agggaggatc gctccgcaat gctatccgcg      300
cgaagcggtt gccgttatca ccattcagga agaagaggcc gaactgtctg ggaactggta      360
tccgactacc aggatttggt ccgtaaggaa ttagcggcat agaggaaaac attcaagttc      420
gaggcaaggt cgtatcgaat gccccgaatg attattcccg aagagatcca agactgtctg      480
atc

```

(2) INFORMATION FOR SEQ ID NO:502

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 605 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...605
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:502

```

ggcgcaatga atcgttgtat ggcaatagcc ccgtaagtat tcagattacg acagggattc      60
tacggagaac tattccttta ggattcagat caatgatgac attcttttca gctgacctat      120
ttcgagcaga aagagcgtaa tgggatatcg atatcaaaat agacggctct tttggtcggc      180
ctattgcaac tcctgtgggg aactaaaact gaatacgaca ctcttctttg ccgattcatg      240
gaaggagaag tgctatatgt gacgaaagag aatactcgta aagtggtaga gcgtacaatc      300
aggatctgca ggtgtcattg gcagacaaga aggctacgat agtaatttgt cattgaaaaa      360
cgaagacttg gatcggtcga agaatttcat cgtgccctta tcgcttcgta taacgacgat      420
gtcatgaacg acaagaagag ttcgctgtca gtacggctgc ttcatcgat gaacgttttg      480
ccatgatcgg ggcgagctcg gcacggtaga tacggagatc gaacgtttta gaaaggatat      540
atcaccgata tctctaccga tgtaggcaca tatctnagag cagtgccgtc tgcanaagac      600
cagct

```

(2) INFORMATION FOR SEQ ID NO:503

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 557 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...557

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:503

tgcgatatga agtcatgctg atagagtacc gaggccgaag cgaggagcaa aagaagcaat	60
agaatataaa tatggtaccc cagctcactc tggaaacaca gaccgatctc ctccgtcagg	120
cttcacatca taggatccgt ccaatactgc tgaacggcaa gaactccctc ggacaaacct	180
tcggcatagt tccccgtcga aaatgaggga tcatgcgatc atgtatgata cggctcagca	240
gaccacgggc aagtaacctt ccaaaccat agcccgtctc aaagcgtacc cgccctgac	300
cagcacgagt acgagcagga ggccgttggt gttcttttca ttacgactcc ccattgacgt	360
gccagcttca aggtaaaatc ctccaatgga gctcaccgat agacggaaga gtaacgacgg	420
cnaactcaac ggcatgactg cgcggatggc tcgcagccgt ccgttcatca cctcctcctg	480
tgcattgctg gcaagcctgc ttcgtccgtc acgagtcgag tgctatcggc aagttggact	540
taggtacatc ttccggc	557

(2) INFORMATION FOR SEQ ID NO:504

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 991 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...991

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:504

ggcgaatata taccccaaga gggcgatata ctgcgcttgc gctaaaacag aaaacaaaga	60
cgaagcagct atatgtctaa cgaacgctat aacctgcggg agtgtcggcc tcgaaagagg	120

atgtgcatgc	cgccatcaag	aatgtggcaa	gggtattttc	cctcaggcat	tctgcaagat	180
tattccggat	attctcgggg	cgatcctgac	tattgcaata	tcattgcatgc	cgacggggcc	240
ggcacaaaag	ctcgttgca	tacgtttact	ggcgcgagac	gggagacctc	tccgatggaa	300
aggaattgca	caggatgcgc	tgatcatgaa	tatagacgat	ctgtgtgcgt	cgggtgccgtg	360
gataatatac	ttgtgtcctc	gaccatcggc	cgaacaaacg	gctgataccg	ggcgaagtgg	420
tatcggctat	tatcaacggc	aggaagaact	cctggccgat	ctgcgtcgca	tgggtgtgaa	480
tgcctatgcc	cgggggggtga	aacggctgat	gtgggcgatc	tcgtcaggac	tatcatcgtg	540
acagtacggg	gacttgccgg	atgaagcgat	cggatgtgat	agacaatgcc	gtatcaaggc	600
cggcgacgtt	atcgtcgggt	tagcctcatt	cggacaactt	cctacgagga	acagtacaac	660
ggcggtatgg	ggagcaacgg	actgactctg	ctcgccacga	cgtttttgcc	cactatctgg	720
cagagaagta	tccgggagtt	tcgatccctc	ggtgccggac	gatttggtct	atagcggcag	780
catgagctga	ccgatgccat	agccggattg	gggctggacg	caggcaagct	cgtctctcgc	840
ccacacgtac	ctacgccct	gtgggtcaagg	ccatactgga	cgaatgagtc	gtcgcattca	900
tggcatggta	cactgcttcg	gcgggtgcga	gccaaaggta	tgcaattcgt	caagaataaa	960
gcgcgtggtc	aaggacaact	cttccgacac	c			991

(2) INFORMATION FOR SEQ ID NO:505

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1776 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1776

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:505

gateccccgt	gctggccgaa	ccggctttcc	tcgacatgtt	cggggtagac	tcacgcgccg	60
cgctccgggat	agtgccttgc	gcgacaatat	gacctgcccc	tctccgaaag	tttggccccg	120
aagatggggg	gcgatgtcct	gggcaaaagg	tgcgaccggc	agaaagcaaa	tcggaccgag	180
ccatcacgat	cggagggtat	tcgaggatct	gccccacaac	agcagcatcc	aagccgatat	240
gctccgccca	ttacgtggat	gccggccgag	agcctgaaca	actggatcgg	caacaccgct	300
acatagccta	cgctccgtctg	cgctccgggtg	tgctgcccga	gagctcgacg	aagctctcct	360
ggagatgcaa	aagcggcatc	aggatatgga	agcttccgca	aagcaggagt	ggaattgcac	420
tattccctta	cgcccttcaa	cgcttgctgc	tggaagatcc	cactttgggtc	aatatgctgc	480
gaatccagca	atcgtggcca	tagcgggtgct	gcttatttctg	ctgctgaact	acgtactcag	540
accctcgcct	ccatgggtcaa	ccgcggcggt	gtagctgcca	ttcgcaagggt	tacggagcca	600
tgcccggtgca	gatacagggt	acgatgatct	gggagacttc	ctctatctct	tcctctctct	660
cgtgctggcc	ctcctgaccc	ttatcccttc	cgcaagccga	tggaggctct	gatcgaaact	720
ccgctgctgc	atctgtctcg	tggcgcgtag	ccgcagcctt	ggccggagta	ttggccatgg	780
ctacttcttc	atgggatgga	tccccggcta	ctccctgtcc	cgtacaccgg	tgagaatatc	840
tttcgcaagt	cggtagcaca	caatcggctc	tggaaagctgg	gatgctggct	gtagaatttg	900
tggcggccac	tttctctctc	ggccttttgg	catcaccggt	ctgcaatacc	ggcacatgat	960
agggcaggat	gccggataca	agccggccgga	ctgtattatg	tccccatcga	gtcgttggat	1020
cagcagcaat	ccctgtcgtg	atcgaaaagc	tcaaggcact	gcccgaagtg	gaaggctaac	1080
gctgacgacc	gccttgccgg	cttcttccgg	ccagagtggga	gataacctat	cgaccccggt	1140
acggatcgtg	agctgatcaa	tgtggccgac	ctcttcacgt	ggacgaacac	tatctgaaag	1200
tctacgacat	cgagttgctc	gaaggaaaaa	cttcgacgct	gccaccgaaa	aggacagaga	1260
gatcatgctc	agcagaaagc	ggctaccgaa	ttggctcggc	tgatgaattg	gaaagacggt	1320

gtctcggcaa	gaatatcatc	ctgacttcct	tcgggcgagt	ggtgattcgc	gggtgtacga	1380
cgatctcatg	ctccgccgtc	agcacctgag	cccttaccce	gaaagctccc	ttccgccatc	1440
gtctatgggg	acgattggct	gcattatctg	cgatccgcct	tcgccatgac	gatgcccggc	1500
tcctccatcg	cgtgaatgga	tcctctccga	agccgatccc	tacaaggaga	cttctttcct	1560
cgggtgtggga	tggagcttct	cagtcgcttc	gaggcagcca	agacttttcg	caatacgtcc	1620
tcttcggcag	tgtcgtggct	atcctgatcg	ctctgatcgg	gctgggtggc	atgtgaatac	1680
ggaggtcaat	cgccgtcgca	aggagctggc	cattccaaga	tcaacggagc	cggagagggc	1740
gacatcttgc	gactcttcct	cgcccattt	ttcggc			1776

(2) INFORMATION FOR SEQ ID NO:506

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 881 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...881

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:506

ttacagctca	tggtagcatc	ggtagtgc	tcagtgtcc	cgatgctttc	aaaaagcagg	60
ccaatacgta	ggcccgttcg	ggcacggacc	ataggcaacc	tgacctgaaa	cccgaagg	120
ccatgacctg	ggacttcggt	atcggatcag	caatgcacgc	tgccggatcc	aagccgacgt	180
aaccttaacc	tatttcacac	cgaccacaaa	gatctgatct	tgtccagccc	tgactatgct	240
aataaatcac	cacatacatc	aatgccgaca	aggctcgtat	gagcggatc	gaggcctttt	300
gtcttatgac	ttcggcagcc	tctttgccaa	caagttctct	ctcgcgcatt	tgcgaaatgcc	360
acgatcatgc	tcaattccga	gatgaagaaa	agcagaccga	tgccccttgg	agcgaaatgt	420
actacgttcg	caagcagaac	acaccttcgg	tatcgaaat	cgtggcaaa	aaggacttga	480
agtgatgctc	acggtcgctt	catgggacgc	aggatcgagc	aaaactggta	tgcttactac	540
ccgaagtctg	ccccgaactc	cagcaactgc	ttgcagcaga	agagcctgat	tggtgtctca	600
gggactgtct	cgatcatccg	aagcaatggt	gttcaatcct	ctgcttacta	ccacatgaac	660
aagtatctca	ccttcggtgt	gaacttaaca	acatcttgga	tgagctttat	acggagaaa	720
acggctacca	catgccggac	gtaacatcat	gggtaagggt	atgggtcaact	tctaattctc	780
tttccgagag	cagatataaa	agggagccgg	tctccctgca	taatcctcac	agacaaagcg	840
gatattcctc	tcataccgag	aagcgggtat	ccgctttctg	a		881

(2) INFORMATION FOR SEQ ID NO:507

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1120 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1120

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:507

cggcttgggc	atcgggcgca	atcacgagca	tgcgcgcaac	aggctgagca	ccgcgtgctg	60
aacatgggtt	acagagggga	gatgaagctg	aacgagaaca	tcgcctgcaa	gccggcggtat	120
cggcacagat	ggagaaaata	gccgacctat	cagcgaatgg	gaacggaggg	attcggtagg	180
atacaacctt	cctcaccgga	gaccgtattg	ctgatgtaca	ataacctata	tgccgatacg	240
cagatagggg	aacgcgcttg	tcggcattcg	tacaggatcg	attcaacttc	agcaggggagg	300
aggtacattt	tctctcattc	cgggtatcag	agcttcgtgg	tgggcttcaa	caaggagttg	360
ctcgtcagcc	cacgtatcag	cgtgggttat	tccccgaaaag	caacccggct	ttggtactgc	420
gtgcagccgc	cggactttat	ttcaggcacc	gttttacaaa	gagctaaggc	agacgcataa	480
ggatgccgaa	gcaataacgt	ggttgctctc	aacgagaaga	tccgctctca	gggagctttc	540
acattctcgc	aggagcagac	tataccttcg	aaatgggggg	gcgaaaatca	agtttacggc	600
agaggcttac	tacaagagcc	tgttcaacat	caacccgata	taatagagaa	cgtgaagatc	660
cgctatctgg	gcgaaaacat	cggttcgggt	atgctgcggg	tatcgatctc	aagctcttcg	720
gcgaactggg	acccgagtg	attcgtggct	gacggcttcc	attataaaaag	cccgtcagaa	780
actgatggct	acggttcttt	accactgatg	aacgcaccca	cttacaattt	ctcttcttcc	840
ttcaggagta	cgtgccgggc	aataaacgca	tcacagccac	ccgcgggctg	cactaagcgg	900
aggattgccc	cagctcaatc	cgagcaaagg	gtagctcgc	cggcctttac	cgcaccggcc	960
tataagcgtg	tcgatctggg	gtaatgtaca	aatggctcga	cccggatgac	tcctttgccg	1020
gccgaagcaa	tggtctaatg	gagtaaaagg	ggcctacata	ggggctgacc	tctttcaact	1080
gttcgacatg	accaacgtca	attcttacta	ctgggtgtcg			1120

(2) INFORMATION FOR SEQ ID NO:508

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1377 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1377

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:508

gacaagccaa	agctttgcgt	ggctatctga	atgccagacg	ctacgggtac	cggattctgt	60
ggtactgtc	cgtttggcac	agacttatca	gcaaggagta	actataagga	agccgaggta	120
ctcttccgtg	gatatctgga	agcttatcga	aaagttat	tgcagctatc	ggtttggagg	180
ggtgtctctt	tgcccgcagc	aaaaggaata	tcctacacgt	taccggatac	ggcgagctgc	240
cgagtgaatt	cggcacgggg	cgacttcggc	ccggcctatg	cacccgatgc	ttcgctctct	300
atttcacatc	gagcagaagc	aaagacgacg	gtttggataa	tagagcataa	cgggactgaa	360
acccaacgac	atttatatca	tcaaacgaga	tgacaaggac	gatggggacg	tcccgatagc	420

gtgtccggag	gaatcaacac	tcatgggatg	aaggcgtgcc	aacgatcacg	cccgatggta	480
gtacccatata	tatacgttgg	cgcagcaagg	agccgattac	gaccgtacgg	tacagatcctt	540
tccgccgctc	ggagcggaga	aggcgggttg	agcaacgggt	cgctcgtgac	attatgcgcg	600
attcgtccg	tatggctgct	catccctcta	tgtcggctcc	ggcgattacc	tgtatttcgt	660
cagcaatata	ggcggtagct	atggcgcaag	gatattttatc	gtgtcaagggt	gtcggatcgt	720
tcttatgggt	caccgagaat	ttggggcctg	atatcaatac	gccgggggac	gaaatgtttc	780
ccttatagat	ggggatagta	cccttttctt	cgcttcggac	ggacacgccg	gtcgggagga	840
ctggatatatt	tcaaagccac	gctggactct	accggccaat	ggatgtagtc	aatatgggac	900
aaccgggtcaa	ttcctctgcc	gatgatttcg	gttggctgtg	gagcctaaaa	ggcaaaaaca	960
aagaagaagc	tttgccggac	acggagtcaa	aggtgtattt	tgttccaacc	gaggcgatgc	1020
acgcggatgc	cgcacctctt	ccatttcgaa	ctgccggcta	tctacaccga	gattcaagtt	1080
atgtgatgga	cagagaagaa	aatcccatag	ccggagccac	tgtcaggctc	taggcgaacg	1140
cggccccgta	ggacagggat	tcgtgactac	tcgtgagatg	gctcctataa	gatgagcgtg	1200
cagggcgata	ctcgtatgt	aatgctgccg	gagcatcggg	ttatttgaat	cagtacgtag	1260
aactcaagac	cgatccgcca	agcagagtga	gacctactat	gtggactttt	tccttgcac	1320
gcggagaaaag	ccgagggcctt	gcaaaatatt	ttctatgatt	tcgataaaag	tatcttc	1377

(2) INFORMATION FOR SEQ ID NO:509

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 184 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...184

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:509

cggctcttcc	agctcgcgat	ggatgggggtg	tttgtatttt	tccatcaaac	cttcttcacc	60
tcctccgata	cggggccgtg	agcattgagc	ttttcatgtc	gggtgcaatg	tcagagtcga	120
cctgtgcggg	gcgaaggcag	tacatctcag	aggatacttg	tcggcaaata	cgtcgggtacc	180
tacg						184

(2) INFORMATION FOR SEQ ID NO:510

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 450 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...450

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:510

ttctttcttct	ttttttattg	ccgctgttgc	tgggatgggt	ggcagactat	ttttaggaga	60
tcctctttct	cttcgcgcatc	ctatagtcgg	cttcgggtcca	tgattgcatt	cggagagaaa	120
agattgaata	aaggaaacta	ccgcaagtga	aaggcgccct	catgtcgggtg	ttctatatcg	180
ttgccgtttt	tcttttacct	tattgatcct	cttgggactt	gtttttgtct	gtgtttatac	240
catttgctgg	acgatttttt	ccggattgct	gttgcatttg	ctgtggcttc	tcttttttgg	300
ctatcggcat	tttcttctgt	ttggcaggta	ctacccttat	tcggaaaagta	cgtatgggat	360
ttcgaaagca	agtccgaatc	gttccgcttt	gaagaaaggg	ccgccaaacc	agggttgacc	420
gccgaaatcg	gtaagggccg	cgaataccgg				450

(2) INFORMATION FOR SEQ ID NO:511

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 519 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...519

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:511

gaaattgtca	tagacagggc	ctcccctcgg	gataatcaca	gggtggctgc	atagttccaa	60
caaataagtt	ctgccgtatg	gagatcgaat	acgagctgac	cctgtcgtta	gcgatatgaa	120
gatgattccc	ttccgctcgtt	acttgcacgt	gggcatccgc	tcaggcagga	gggaagcaaa	180
accctctctt	tgtgcagtgt	aaactgttcg	gatgctaccg	tgtatccctt	atcggaccaa	240
gtgggtgctt	acgaaggaag	agttcgaaat	cgatatggaa	gtcgcgagtc	gaatcattgg	300
aatatcggcg	acgggtatcc	tcaatgtagc	tttttctcct	gccgcaattt	gggcagatcc	360
acttctccgc	tttcgatcac	acagccgtcg	gaaggagctt	aaaacgaaga	ccgaatcgat	420
tcaaataccg	aaaggagtag	gattgtgcag	agtgagcaag	tttgctttta	ctgtccgtat	480
gcatacgaatt	cacgtactgg	atacactttt	cttcacttc			519

(2) INFORMATION FOR SEQ ID NO:512

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 391 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...391

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:512

agtgttgtgt	tatgggaagg	gtgttgtttt	atttatcatc	ggaatcgnaa	cagactattc	60
ggctacttgg	atttctcttt	tttatccctg	atgccatatt	tacccttttt	aggccgaata	120
tccccctcaa	ggctattgag	gtagtgaagt	catcgaaaat	ttttagaagc	cttctgagct	180
atgtttttta	agccactaat	ttactgatac	cgccattttg	tcagttttaga	ggatccatct	240
ttatccgtta	catttgtgat	tgccaaatga	atgtaaaatt	acacttcaca	acacactttc	300
gatttacatt	cttaatccga	tcagggtgta	atcatattta	atcgaattga	atccacatat	360
gtaatcatgt	caatttnacg	cctgaaaacg	a			391

(2) INFORMATION FOR SEQ ID NO:513

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1186 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1186

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:513

acggctccga	taccggcttc	atgcagacgg	gcatattctt	ccgtgggtcag	ggctgaactt	60
cgagcgagag	ttgggagaag	agtggacgca	gtcgcgctc	attttctcat	agtagcttgc	120
cggagtggct	ttctcggact	ctcccgaacg	agaaggaggt	gtttgtatcc	gagccgaagg	180
atcgttccg	cttcccatcc	acctcttcgg	cagtgaatcg	gcggcgatgg	attttgttcg	240
accgatgaat	ccgcagtata	cacaggcatt	gctacagata	ttcgacaggt	agaggggata	300
tagagctgca	tcgtgtggcc	gaatcgctct	accgtcaggg	catcgcttgc	cgggccatct	360
gctccagata	agggatggct	tgcaggcgaa	atagcgtgat	aaagtcttgg	atggtgcggc	420
gtcggtatgc	caacgaacgc	tcacatcggc	agccgtagca	tcggccaaga	ggttaccac	480
tcgctcccaa	tataggggga	ggcgtgcaag	tgatcataga	aagtcataat	ccggaagaat	540
atttcagatt	gaggaaagag	gtaaaacggc	agctggcttc	ggcttcgggc	ggacgctgcc	600
gaacttggct	tcgaaaagcca	ttcggccggc	ttncacgcaa	ggcggaaagc	cgctgccatg	660
cttacgggat	cttccgccac	ggntatgccg	tattcaccag	aacggcatca	gccccatct	720
ccatggcttc	tgccgttggc	tgggcgcacc	gatacctgca	tcaatgacga	ccggcacacg	780
actcgttcga	tgatgatacg	gatcatttca	cgggtcttca	gtccgcgatt	gctccgatgg	840
gagcaccag	tggcatcacc	gtggctgcgc	cggcttcttc	caatgcttgc	acagcacagg	900
atcggcctga	acgtaaggga	gcacgataaa	gcacgacgaa	cgaactcctc	cgtggcacga	960
agcgtctcga	tagggtcggg	agcaaatacg	ggggatccgg	atgtacttcc	aacttgagcc	1020

agttggtttg	agggttccc	gtgcaagctc	ggccgccaga	atggcttctt	tggcagaggg	1080
acacccgaag	tattgggcag	gagagtgatt	tccggatggc	gggtgatccg	actgatcatg	1140
tcgtctttct	ttcgacgcga	cccgatttcc	acttcgttca	gggcaa		1186

(2) INFORMATION FOR SEQ ID NO:514

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 655 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...655

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:514

aaggacaagc	agttggaatt	ggacaaacgc	tatctgcgca	tggcgcgcat	tgggcgggaga	60
attcctactg	cgaacggcgc	aaagtgggtg	ctcttatctc	aaagagcaga	tgatcatttc	120
cgatgggtac	aatggtacac	cggctggttt	gagaatatct	gcgaagacga	gaacaacgtc	180
accaagccct	atgtctgcat	gccgaagcca	atgctatcac	caaagtggcc	ggcagcacga	240
acaacgctcc	ggtgctacta	tctatatcac	ggcagctccc	tgtatcgagt	gtgcaagctc	300
atcatccaga	gcaaaataaa	acgggtgggt	tattccgaga	aattcgtctg	gacgaagggt	360
gtcgcttgct	ggagcgagcg	ggcattgtcg	tcactttata	gacatttccg	atattcagga	420
ataagttttt	tatgaaacgt	tatccggttc	cggcagcacc	ctctcataca	tccttatcgc	480
tgccatcttc	gcgccgttgg	tgctcttgcc	tcacatttct	atttcactca	caagaatcca	540
gcgatctgaa	tgaagtgttg	aatctgatcg	acaggaaact	atgtcgatcg	gtagatgtgc	600
cggaagtgtc	agcacaaat	gattccctat	ctgctgggca	gctcgaccct	cactt	655

(2) INFORMATION FOR SEQ ID NO:515

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 343 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...343

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:515

aaagcatctc	ggcatccgtg	tcctgaatat	ggaagtcccc	atacgggccc	tcatcatcac	60
cttatctccg	ggtttttagcg	agaaaaatata	tgaggaggaa	taccgggctt	gataccggcc	120
ttccacttat	tggcagctct	gtcgaatgag	gagtcgcat	acgaacgttg	agcgtaatga	180
tgttgccctt	agccggtagt	tggccattga	ataggcacga	acggtctctt	cttcgttctt	240
acaagcaatg	accacgcata	catcttgtcc	caagtcgcca	cggaagcgat	cctgatatcc	300
gaagtccggc	atagcggatg	tngtatttcg	gtatcctnga	tct		343

(2) INFORMATION FOR SEQ ID NO:516

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1107 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1107

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:516

tttcgntccg	cttttccaag	atthttgcatg	aatgagagn	caggacgtaa	gatgaaaaag	60
ctgtctttcg	gacgaggagaa	agcagagcat	gccattcggg	tatttttttc	gcgcgaaaaa	120
agttttcaac	aacgaagacg	agtttgatg	attctaaata	agggggtaaa	aagaagcgga	180
ttttgaagtc	tgaaagtcag	agacgagctt	tttcagttca	aaacatgctt	ttcagaagag	240
aggatacgat	ctgtatataa	accgttttcg	atctatata	agatcgtttt	cgtttatata	300
taaatcgttt	tccattttata	tatagatcgg	aagtcctttc	tattaaatca	gaggctgaaa	360
aaggccactt	cgagaggcta	taaaaagagg	caccacacga	ttcgtggccg	aaccatgcgg	420
gtgccttatg	cctttagggg	atataagagg	ggttattcct	acttattcgt	catagggata	480
tgggctgttt	ttccgagtac	gagatggcat	gataggctat	gggcgcgaaa	gaatcggccg	540
aaagatcggg	ggtataatgg	tgttcagtgt	gtacatattc	aattattgtg	agtctattat	600
ccatgtatth	ctattcaagc	aatcggtctt	cttggcacaa	cattcaactt	ccgacagaga	660
gcttcatccg	gttggaacaa	gtaacgaaat	gctgaagtcg	aatgaatcgt	aacagccacc	720
gaatgtttta	ctataaacat	ttcatcgcca	agggtttatc	tttgtggcgg	aatgaacggt	780
gacttcggat	atatatcatg	gctgcaagag	cagatctgct	gcatgtggca	gcatttgctg	840
tgctgtggag	gctatcgggc	cacgggtagt	ccaattcgtg	cgagggttg	atacatacga	900
tccttggtgt	tggctatcgg	tagcctacaa	agagccaaat	ctctgttgat	aaaggctctg	960
atgcctatgg	cccggacgta	ccgattatgc	tcggtattcg	cagagaggat	acacctgtag	1020
ggcgcacga	ctcgtagctt	tcgatctgga	ttcgacgctt	gtgcgcacgg	agatcatgat	1080
gaattggcca	ccgcacacgg	atgcctc				1107

(2) INFORMATION FOR SEQ ID NO:517

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1296 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1296
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:517

cgcccaanat	gaaatccggt	gaataacctc	acggcatccg	cagaagatgg	acctataccg	60
cttcatggaa	cgctgtacct	tcagccgaac	gctacaacat	ttcgctcgct	tcaagcgtag	120
agctgccgct	gacggcgcat	tctttgtacc	gacgaaaact	tcgatggaat	aaagactcct	180
accggagaac	tgacagctgg	acgatagaaa	atccgtctac	ctatacgtac	gatgaggttt	240
acctggcgat	ctgggtacaag	ccggctggaa	agggactaac	tatgctccct	acacgactat	300
atctgcttgg	atgcatggca	gtacattttc	aatcacaccg	atgaggcctg	atctcaccgg	360
agttggatct	ttccaaaagat	ggcgggaaga	taacttgagt	gtgaagctct	atgctacgaa	420
atacgtcggc	gacgatggcc	aggcaatcag	gtggaaggct	atacgcgagc	agcgatcgcc	480
ctcttccaat	cgacgagact	gtcggagact	atgtgcagtc	agagctgctg	tatctgaata	540
atcggacgga	ctggctgatc	agtggaaagg	attcaacggt	tctttgacaa	gggaacggag	600
cgttcggtaa	tcggcatata	tgccgtatat	gcaccggaaa	tctctatgtc	gatgatctca	660
agatcactca	aaagtataag	gccggcaaa	cctgccggat	cctttcctct	tcaagagata	720
tttgaaaagc	gaatcatcga	tgtaaatgtg	cccagcgcgag	tattcaagaa	tgaaatgttc	780
catcggtagc	tgccgtgaag	catggaggcc	aaggagtaca	atatcaagg	tacaaacgac	840
tcctttcagt	ccgctccaat	ctttcggagt	ctgtccttct	ccacgaatct	gactccctcg	900
gtaagcatgg	ccaaggctat	ggtacagggt	acggagataa	tatccatata	gacaatgttc	960
atggcgaggc	tgtaaagtatt	atgatttcag	tggctcgttg	gtttatagcg	attactcggg	1020
caacgggtca	ttgttgtcaa	cttaggccag	ggcggaaagt	tcacgtgcaa	agtgggtatc	1080
gctctatgaa	gctgacttac	taagctatct	ctcacccttt	cctaaaaggta	taccgggggg	1140
gtgtgccgga	agtgtgaagt	gagcacttcg	gcacaccctt	ttattatact	ctacgagctt	1200
ttcaagcgag	ggaaataaag	cgtttctggg	tattcatcag	gcccaaagtc	ttaaatttgg	1260
taccgcttan	tccccgaaaa	ttatgaagaa	gaaatg			1296

(2) INFORMATION FOR SEQ ID NO:518

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 946 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...946
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:518

tgGCCctgca	tcctcgnngg	gtttgtactc	tggtttgtat	cggcgagtcg	actgtggcac	60
aaaacgcctc	cgaaacgacg	gtatcgtagc	atacggatcc	gccgtactct	ccgaagccga	120
tgtgcttcgg	atcgctctta	gtgagaagcc	acagtgaag	tggccgatat	ggatgtgcgc	180
aaacaggaat	atgcactagg	gcagcacgtg	ccgatctctt	cccgaagta	gacctcaatg	240
gcgttacagc	catacgctaa	agaagcaggt	cttatatata	gatatgcccg	gtttagcagt	300
agcgaaggta	tcgaaatggg	gcgtacacac	aatacgcaag	gaggggtgaac	gtctccatgc	360
cattgggtgc	ggcacagctt	tggaaaagca	ttccatgacc	ggagaacagc	tcgatctggc	420
tctggagaaa	gctcgcagct	ccgaatcgat	ttgggtggcag	aggtgaagaa	ggcttacctc	480
agtgtattgt	ggccgaggac	tcttatggcg	tattcaagcg	cagctatgac	aatgctctgc	540
caattataag	aacatatccg	acaagttcga	tcgtggactt	gtggccgata	tgataagatt	600
cgagccaatg	tacaggtagc	caacatcgag	cctaaccctt	gcaagcgcag	aactccgtag	660
cccttgctct	ctggcagctc	aaggctctgat	gagcatggaa	gtggaaactc	cgatcagact	720
ctccggttca	ttgtcgacta	taaagaacaa	gtctataacc	gctattttgc	cgccgatacg	780
cttattccaa	caactcctcc	ctgcgtcagc	tcgatataca	gcgtcgtctg	gcttcagtg	840
agacaagctg	aacaagtaca	gcttcctgcc	tacactcaat	ctggagggca	gtacacctat	900
tcgctcaaca	gcaacgacat	caaactctggg	cagggacacg	ctgacg		946

(2) INFORMATION FOR SEQ ID NO:519

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 501 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...501

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:519

gtgtattctt	tggattaggc	gcataccttg	tatatatgtc	caaagcttaa	gctacttaag	60
tgacgatcca	cnagtttgta	tcaattgcc	tgtaatgggc	cttactatgc	cacttggcaa	120
catagttccc	acgcgatgcg	tgccaccgca	acgactgtcn	tgtgccacac	aacagtat	180
ttagcaagta	ttatttaagg	catcagatgg	tctgcggcac	tcctatgtat	ttaccatgag	240
gaacnacctc	aacgcatgca	ggccatatcg	gcaagtcagg	cggtaatcta	tgacactgtg	300
tgcgttgcca	cgctcaactc	aatcaagaat	ttgtccgtnc	aggatgctga	ccanggcgga	360
tattcgtact	gcagaagaga	aagcatgctg	ggctgccaca	ganatgtgcc	tcattggaggc	420
aaaaacagcc	ttagcgcaac	gccaacggga	ttatatcata	cccaaagtcc	cctgttccgc	480
agtggtcttan	gcctatataa	g				501

(2) INFORMATION FOR SEQ ID NO:520

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 763 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...763

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:520

ctgcgaatng	aatcgatacn	gaatcccatc	gacannaatc	tctttgcccc	ggttcacggt	60
cggacgctcg	ccnaataatg	gatttgccga	cagacagata	ttgcttctct	tcggagctgt	120
acaggcggat	gacctcgcga	agggcattac	gaactgtcgc	aagcaatgaa	aagacttcga	180
gagagacagc	cggattaagc	aaacgaatcg	ctcttgctcg	attcggctct	ctccgcgatg	240
aggtggaagt	ctttttccca	attataagct	tatttcgata	ggttatatcc	gtgaccaagc	300
cgaatggccg	aactgtaccg	tgctgcccga	ctctttgtaa	ttcctcttta	gaggagaacc	360
tccctaatac	tattatggag	gctctctctg	tcgtacgccc	tgtgtggcct	tccgtgtcgg	420
gggtataccg	gagatgatcg	ttcgggtagt	nccggatatt	tagccgcttt	tcgtgatccg	480
tccgatttgg	agaagggata	accaagacca	ttgctctaca	agaaacctcc	cccgaagctt	540
tgcttcagct	tgctgctcct	ttgttctcag	gcactactcg	cgtgaagtgt	atcctctcgt	600
atgctgcagc	tctaccgcga	actgctctga	cttggtacaag	aaggaatagg	aaaacatcca	660
aaacgcaaga	gtcttttcgg	caactttcag	cagataaata	tcgagccatc	tttttggcac	720
caaaacaata	ccttttatca	taatcattat	taagaacgag	ctc		763

(2) INFORMATION FOR SEQ ID NO:521

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 932 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...932

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:521

atgctgtcag	cgatggagtg	aagctggatt	tcgatgattt	ggtccttaga	tcaagttggt	60
aaccatcagg	gatagacttc	ggaggcagat	atgaatttct	tgtctgcnga	gaaatctggt	120
ccactancga	ttatttagat	acaaatgtag	aaaaaacacg	ctacaccgac	gaagagttgg	180
aagaattcaa	gcaaataatt	tggccaaatt	ggatcaggct	cgcaaggact	acgagcagtt	240
gcgtggggcg	tcagcaattc	agagggtaat	gatgtgtctg	atacctctcc	cacgtcaagg	300
tgttggagga	gggtgcagcc	acactgtcga	aagaggaatc	cggcgcttgg	cacagcgact	360
gatgaagttt	atccaaaact	tgcaagctgc	tcgatacgta	tcgagaataa	gacttacggc	420
gtttgccgcg	aaacgggcaa	attattccca	aagaacgact	tcgcgccgta	cctcatgcta	480
cgctgagcat	gaggccaaaa	tgaacgagaa	gaaatagtag	atggcttctt	ttctctccct	540
ctgcctcagg	gaaaagtagt	cgcagctctc	attgtcttgc	ttctgggtcta	gatcagggtga	600
tcaagatatg	ggtgaagacg	actatgggtac	tggggcatcg	cacgttgtcg	ccccttggtt	660

tcagatccat	ttcgtggaaa	atccccggatg	gcttttcggta	tagaattagg	gagcaaaactc	720
ttcttgagtc	tctttgcatc	ggtgccatgg	gcttttgat	ctatttattg	gccaaattgg	780
tacgaagcga	gagcatacac	tcgcctttct	ctcttggttg	tctctgatca	ttgcggcggt	840
atcggaata	ttatcgattc	tattttctat	ggggtcatct	ttccggcagt	cacggacaga	900
ttgcacaact	atttccttca	ggaggtggcg	gg			932

(2) INFORMATION FOR SEQ ID NO:522

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 697 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...697

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:522

ctcgggtgaa	ggaagtatgc	gggagtaccg	gtggaactga	aagtcgtggt	atgttggcag	60
caatctgtcc	ggccttgccc	ataccggaag	ttatcagcga	ccgttagagc	catgcacttg	120
acgaacaatg	aggtcgatag	ccgccttttag	tcgttgctctg	cagggatggt	acggatggct	180
tcagcttcat	gtgccatatt	tcggagatgg	ttcgattgtg	tatttctgcc	ttcatgctca	240
ataaatgcgc	tgcaaaagta	tttatttaaat	tttgcataatt	atgcttttaa	ggcttttctt	300
tgcactaaat	cttattcgat	ttagaattgg	aagggtggct	aagaaaatgc	aattaagcta	360
aaacattgag	aaaagccctg	aaagcatgat	agcgggaagg	tactatgtaa	cggatattcc	420
gaatttataa	atggattatc	actatacacg	ctgccgagcg	gtttgcatgt	ggtatataaa	480
ccgcatgcgg	cgaagttaca	tacgccggct	ttgccatagg	cgtcggcaca	cgccacgaag	540
ctcgcggcat	catggattgg	ctcatctgac	ggaacacatg	ctcttcaagg	caccagcctg	600
cgcaatagcc	ttcagatcat	tcgtcgcgatg	gaagaggcgg	tgcncgagct	taatgctttc	660
accgagaaag	aatccaccta	tgtgtatgca	tcttttc			697

(2) INFORMATION FOR SEQ ID NO:523

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 742 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...742

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:523

aagccgaaca	tgcgtgggtac	gntgaccagc	gtgtagcata	gtaccggcag	tagatgggtca	60
gataggccag	ccccttgcca	aagacgatac	ggagtgcgcg	gagtagtggc	tgatatcggt	120
aggtagcagg	tcttgaaact	tattccttca	cgcgccgtac	cggccgagag	tcctatgccg	180
agcaggagcg	tctgcttatg	atcaggatga	gtacggcagg	tagcaggaag	gaagcgaaac	240
cgacgtcggg	ttatacagtg	ccacgtcttc	atagtcgatg	gggtaagaga	tgattctccc	300
tgacgtcggg	tagctcctac	gctgcgcgct	atcttgatct	cttgttcatc	tccagcgaaa	360
ccagtgtatt	ggcaatgagc	aggcttttgt	agagagcaat	ccgctcatat	cgcagtaaaag	420
agagatatgg	gccttcctgc	cgtattgaga	tgttcggaga	aatcctccgg	aacgtagatg	480
atgccatagn	attgcgcctg	cggatttgct	ccttggcctc	ttccatatcg	gtgcagtgtc	540
tacgatgctt	acttcgggtg	tggcatctac	ccttcgcagg	tattcgcgct	cagtgtcgag	600
ttcgatctgt	ccaccaccat	ggccggcaca	tcgcgtacac	ttccgtggct	gtatatatag	660
ctgtagagga	gtgggtacag	gaggggacta	tgatgaaaaa	gatgaccata	cccatgtctc	720
tgaacgtctt	gcacactcgt	ac				742

(2) INFORMATION FOR SEQ ID NO:524

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 926 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...926

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:524

gcaagatcca	agatgcttac	acacaggcca	cgaatggcaa	tatcagccaa	agatcaacgt	60
cagtgcggac	tacgacatca	gccgcatgct	taccctgcag	cttattacga	ttgggatatg	120
aaccatccgc	ttgtcagctc	agcctcctcc	ctatcacgaa	cagcaatttc	ggcgtcagct	180
tccgtttcaa	tctgaccagt	agcctaacgg	cattaccacac	actcctcgta	tcgcattttca	240
gcgaagccac	ctcccattct	tgagatagtt	gtatccatag	tattcggata	ttcatagtga	300
aatccatata	gtgaagaaag	tatgaccgat	atggatagga	tacatgggtc	catatgagag	360
gatactatgg	tctaacatga	gaggatacta	tgtctcataa	aagttagaaa	tggagaagag	420
aaaatgccgg	atccctaccc	tccacgaaca	ttagatcgat	cagatacgat	aatcatgctt	480
cggagatgaa	ccaatcgctt	ttttcaagca	gaaagccgat	atgttggtgcg	tttgagtgtc	540
ctgattacct	ttgccggaca	ttacttttca	aggattataa	taatgatcat	cgagcacttg	600
tccgatcccc	agttttgcaa	caagcatatg	tgtattacat	cgagatgatg	ctgatatnca	660
atctgccgaa	aaagagttgc	tcaacatctg	gagcagacat	acgacctata	cctatattat	720
ctcctcttgg	ttccgagctg	acaagactgc	atgcggaagc	cctcgaagcc	aacaagaaca	780
agcattagcg	accgaaaagg	acaaaaaccc	caatctgcgt	atggtacgca	accgcttgcc	840
gaaaagatcg	agagctgcag	gcctttgtgg	gtaagagccg	aaagaatgct	ctgaattggc	900
gttccgaaga	agcttttctg	cgacgc				926

(2) INFORMATION FOR SEQ ID NO:525

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 646 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...646
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:525

aatggcaagc	gtcttgcccc	tgaagtgtac	aatctcttag	gcgtaaagga	tttacctctc	60
agctgccccg	aggatccggc	tcttatacgc	tgccgggtgg	ctgcagcgtg	gtgtgcatat	120
cttccgcac	acagaaggag	gtaagccgcg	tttgttcaga	agtatctgat	taagtaataa	180
tgggagtacg	gccaaacctg	cacgatttgg	aggctaagga	cgtttttccc	aagataaaaag	240
aggctcctcg	gagttcgaca	tagacttcgg	ggcagtcctc	tcgttatatt	ttcagtcact	300
gaatctgatt	gaggaaggat	tcggcatcat	ttctatatta	gattagtgcc	gacatttgtc	360
atccgaaaagc	agacagtaat	actttatcat	caggcaaaga	tattgggtggc	atttaacacc	420
gtgagcgagg	ggttcgaccg	gttaccgctc	gtcacgaagt	ggttttcccg	cccaaagggc	480
gcgattttac	caagaagaaa	tagcagagcg	tatcgtggat	tgcgatgttc	tctgttccga	540
ttcgacattc	cgatcggtag	ggatttgatt	gacaaaggcc	cgatcgctaa	gttgatcgct	600
aactatgctg	tcgggtacaa	taatatcgat	gtgactttgc	agcatt		646

(2) INFORMATION FOR SEQ ID NO:526

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2546 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...2546
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:526

cttcacacgg	ctcatcatcg	atattccccc	caataccatc	agagagaggg	gacgcagagt	60
atataataga	tggttaggact	cattggctgc	ctcctttctt	ttcttgctaa	acatacggag	120
catgcggtgc	gtgacaccga	aacctccacc	acattgatgg	tagcgaggat	gatggccagt	180
cctccgaaga	tttggcgagg	atgagtttgc	cgatcatgcc	gaacttgaaa	gataatccgg	240

cagctcaata	gctccgatta	cggttactcc	ggagagagcg	ttcatacccg	acatagcgga	300
gtatgcagca	agctcggcac	attgctgata	agcttgtagc	cgaaagcgtg	gaagctatca	360
gcacgatgat	aagaatgatc	ggattcatta	tttatgagt	attggtgtat	tagctcaaat	420
gagtaagagc	caaaggacgg	cacttgagag	gggtcggtcc	ttggctcttg	atattaagat	480
gtaggaacag	tcgattacag	acccattgct	tcacgagtac	cggcgtgttt	gatttcgcct	540
cgcgagtaac	gaggatcttg	ctgcaaactt	cgtcgttcat	atccaattga	tccgaccgtt	600
ctttgtgagg	tacttcatca	gattgtacat	gttctgtcga	acatccaagt	agagcttttc	660
ggaagcatac	cggggatgtt	cttgatcctt	ggatcatcac	tccgtgcttc	acttccttgg	720
ttcccttcgg	cgtgattcgc	agttaccgcc	ctggtcgata	gagatgtcca	cgattacgga	780
gccggcttca	tacccttcac	catttcttcc	gtgatgatga	tcggagccac	cttcccggga	840
tcaatgcgct	acagaatacg	atatccatat	cctgaatggt	ggcttgaggg	cttcgcgttc	900
tttggccagt	acatcatcgg	gccatttgtt	gcataatccg	cttcggcgat	agccagttcg	960
gcaggaacgg	tcggtatcca	gatttggctc	ccaagctctg	agcctgttcg	gcagctgcag	1020
ggcgaatatg	gcagcataag	tgatggctcc	cagacgctta	gccgtagcca	aagcctgcag	1080
ccagccaacac	ccacaccgat	caccattact	ttggcgggcg	gaatcatccg	acagccgtac	1140
ccatcatcgg	gatgaagctg	gcgaagtctt	cggcagcatc	aggatacctt	tgtagccggc	1200
acaagtactc	atcgaagtca	gtgcgcgagg	ttttgtgcac	gtgagatacg	ggggatacca	1260
tcgagagtca	gcgaataaca	ccctgtttgg	ccagattgcg	taccatttcg	tgggttcacc	1320
ggtaagccgg	atgaatgaat	gtgatcagat	actgaccttt	gcgcatacag	tcacttcgtg	1380
cgtattgagc	tgttcgttga	acaaaggctc	ttttaccttg	agatcacttc	ggcaccgtca	1440
taaacggcct	tagctccgtc	taccagcgta	cacctgcctg	ggcatattct	tcgtcatgat	1500
actgagcacc	ttctcctgcc	ctttttcaaa	cagaactttg	aaccgcgtct	ctacaaattt	1560
ggccactgtt	caggggtagc	cgacacacgg	ttttcgccgt	gcataatctc	ttttggatgc	1620
caataatcat	tgcttagatt	ctttttgaat	gtgattttct	aaattaactg	ccggagggtta	1680
acatcggctg	ctccgaacgt	ctgccgggtg	atgagggtag	gcgtccaaag	gtcatcggga	1740
tgtaagccgc	tgagcgacca	caaaatagaa	aagaaatgta	tataatgcac	ttattacgga	1800
cacttttctt	caacggaacg	cttattatca	aagagtaaac	ggaaaaacaa	agaaaccact	1860
accaaactat	cggcagagcg	tgcattcccc	atattcgata	gttgtgagta	gggtttctct	1920
ttattttctc	cccatctccg	gtcggccggg	cggaggggat	tcctcgccat	ttgcggccaa	1980
gagtagggga	gactactgtg	cttattgctc	ttgagcaaat	cgcgaatctc	tgtaagcagt	2040
tcgatttcag	gtggcgtaga	gcaggagctg	cagggtgcctc	ctcttctttc	ctcttggcag	2100
ccatgatgct	ttgatcatca	ggaagatcac	gaaagctaaa	atcaggaagt	ccaccgagtc	2160
tggataaaat	tgccatagtt	ccatgacact	tccggtttca	cgaccctccg	ccttcgacga	2220
cagccttgct	caataccaat	ttcagatctg	tgaattgacc	ccaccctgca	gcaaactgat	2280
gggaggcatc	atgatgtcgt	tcacaacgag	gtgacgatct	ttccgaatgc	gccaccgatg	2340
atcacaccga	caccatgtcc	actacgttac	ccttaagggc	aaacgctttg	aagtcctgaa	2400
taattttctt	ataatacgct	ttgtttttga	tgagatctgt	ccgccttggt	ttgcaaactt	2460
agattgcata	tctacagaga	gttcccatac	atgagttaga	tctctaatta	aacgcccaca	2520
gcactctttt	ttcccgatgg	aaaatt				2546

(2) INFORMATION FOR SEQ ID NO:527

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 557 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...557

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:527

gtcatcagtc	cgaacgggtca	taagtatatc	cgcggaataca	atgtggataa	ataccggcca	60
ccatcttttcg	cgtgggagga	gtggtactca	agcgcgaaaa	gtattctgcc	actacatcaa	120
tcgtgccata	ttcaaataca	cgctgatgaa	gcacatagcg	atacgctact	gcgctttcgt	180
cccctgcttg	ctttcagagc	gtggcagctc	tcactcacga	aaacgggcag	atcgaacgtg	240
gacattccccg	gccccgaaacg	gcatagggat	cagcctctac	aagggttata	cccactcttc	300
atgcagttca	gcaaagaacc	cgaataccgc	gaggagggat	attgtacaaa	gacttcgaat	360
accccaagga	aaaagagcgt	ggatacgagt	gtcggaggat	ctttacatgc	ccggcacatt	420
cgagattccc	ataaaaaaag	ggaatccatc	tactttgctg	ccggtctttg	aagaggccaa	480
tccaaatacc	ttcgaacgac	atttgtcaag	gaaagtacga	gagcgcattc	cacgccgaaa	540
atttttcagc	tgcccttg					557

(2) INFORMATION FOR SEQ ID NO:528

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1170 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1170

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:528

gttgcgtacc	acgacctctg	ccgcttttagc	ctgcaccgtc	acactctgtg	aagacgggca	60
tcttcgttca	tggatatatac	tttgagcgta	atggtttgcc	gtttctaaga	gatatttttt	120
cgtcgtgggt	agtgtaacct	acatatgaac	gcgcagaatg	tagtcacctt	cctgtgacgt	180
tttcaggctg	aacaaccttt	ttcattagtg	gcacctgcgg	caacggctac	ttggccggta	240
ctctgacaag	ctgtacgttg	gcttgaatca	tggggttgcc	ttcttcgtcc	aatatctacc	300
tgctactccg	gcttgttggg	cttccagccc	gacgaaacca	agaaagcaag	gagtattgac	360
aacagtaatt	gataaatcga	tcgcataaga	aagtttgaaa	agaaaaatag	gtgctatcgt	420
tcccattctc	cgaaatggta	tttacgattt	accctacaac	tgaaatagag	aggaaaagag	480
aaataagttt	aaagaccatg	tcgatttttc	acattcggac	ctccccgcaa	ctgtcgggaa	540
cggcgacaag	tatcaaggag	caagtcggat	ggcattcttc	tttggtatat	ttgcctcaag	600
ggagcaaaaca	tgtatctatt	ctatatattt	ccgctcagga	aaaagggtgaa	gaaattccgt	660
cgaaaagtag	tcgcttacag	agaaatacga	acgaaaaaatg	atgagattgc	gggtgcgattt	720
ttggggaaaa	tacgccctaa	attttttcgt	tttggttcgt	aattttttga	cttctcgcgc	780
caaacgaaaa	atttctcgcg	ccacgttttt	acgatccacg	cgcgagcatt	tttcagacgt	840
aaaaacgtcg	gagaggga	tgccctccat	ctgctgtttt	ttgtccccgc	agtggaggaa	900
aagctcggat	ggaagagcct	tcgggacaca	gcccggggag	ccgtctttct	ccaaaaacac	960
gtatcttttcg	gagatttttag	tgcaaccgcc	cgattattat	gaagcatttt	ttcagtgcta	1020
tacgccgttc	gtgccaccct	ataagaagta	tgtggcatgg	agcgtgggtg	ccaatacgtg	1080
agtgcactgc	tcaacctatt	gtctttctct	ctgatcatgc	ccatcctcgt	atcctcttca	1140
ggatagaccg	gcaggtgacc	acttacatgc				1170

(2) INFORMATION FOR SEQ ID NO:529

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 905 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...905

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:529

gcgaaattaa	ttgtaaatat	gactgtcgta	aatacaggga	aaatttaagt	aaggtaaaaa	60
tagaatgaga	aaagcttggt	tcatgggcct	ggggtataag	gtctgccaac	ggcaattgta	120
actgccaaaa	gtggaataga	agtattaggg	tagatataaa	caccaatatc	gttgcaaaaa	180
ccaattcagg	aaaattcact	ttgtggaagc	aggatatgga	gatcttttac	aggaagttat	240
acaaaagaaa	cattccgtgc	ttctacaaca	cgggaggata	gcgatgttta	tctgttggtg	300
tgcctacacc	cttcaaggcc	aatcatgagc	cggacattac	atggtagagg	ctgcaacaag	360
atcaatactt	cccttgctca	agaagggcga	ttatttatta	tcgaatctac	ctctccgata	420
ggaacaacag	agcagatggc	tatctaattc	atcgagagcg	tcccgaactt	aaagaccaat	480
tatatatggc	tactgtccgg	aacgtatcct	tcccggtaat	gttatttatg	aactggagcc	540
aacgatcggg	tcatcggggg	cttaagcgca	gaagcgaccg	aacggggcaa	gagttctatg	600
ctcattttgt	taaaggaacc	ttgcatggaa	ctaatgccgt	acagcagaac	tctgcaagct	660
tacagagaat	gctagccgag	atgtacgata	gcgtttgcca	acgaactttc	tttcatttgt	720
gacaaagccg	gaatcatgtg	tgggaactta	tcgaactggc	caataagcat	ccaagggtga	780
atatcttcag	cccggtagtg	gagtaggggg	gcattgtatt	gcggtggatc	cgtttttaat	840
ctcttcggct	ttcctctgga	gagtaaactg	attgccgggtg	ctgtgaatca	atactaccag	900
gctttt						905

(2) INFORMATION FOR SEQ ID NO:530

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1102 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1102

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:530

gaatcattcg	aaaatggtat	tcctgcctca	tgggaagacga	tcgatgcagc	ggtagacggca	60
------------	------------	------------	-------------	------------	-------------	----

acaattggac	gacgacccct	cctcccggag	gtcctctttt	gcaggtcaca	acagtgcaat	120
ctgtgtctct	tcggcttctt	atatcaattt	gaaggccctc	agaaccctga	taactatctg	180
gttacaccgg	agcttttctt	cctaaccggag	gaacgcttac	tttctgggta	tgtgcacaag	240
atgccattat	gcacagagc	actatgccgt	gtatgcatct	tctacgggta	acgagcttcc	300
aacttcgcca	acgctttgtt	ggaagaagtg	ctgacggcca	agaagttgtt	acggcaccgg	360
aagccattcg	tggcactcgt	gttcagggca	ccggtatcaa	aagacggtac	agttgcctgc	420
gggtactaag	tatgttgctt	tcgtcacttc	ggctgtacgg	acttcttctg	gatcaacctc	480
gatgatgttg	gatcaaggcc	aacggcaagc	gcgcagactt	cacggaaacg	ttcgagtctc	540
tactcatgga	gaggcaccag	cggaaatggac	tactatcgat	gccgatggga	tggtcagggt	600
tggctctgtc	tgtcttccgg	acaattggga	tggctgaagc	tcattggcggc	accaacgtag	660
tagcctcttt	ctcatggaat	ggaatgcttt	gaatcctgat	aactatctca	tctcaaagga	720
tgttacaggc	gcaacaaggt	aaagtactac	tatgcagtca	acgacggttt	tcccggggat	780
cacttgccgt	gatgatctcc	aagacgggca	cgaacgccgg	agacttcacg	gtcttttcga	840
agaaaacgcct	aacggaataa	ataaggcgcg	agcaagattc	ggctttccac	ggaagccaat	900
ggcgccaaac	ctcaaagtgt	atggatcgag	ctacggtaga	tttgccctgcg	ggcacgaagt	960
atgttgcttt	ccgtcactac	attgctcgga	tttgaactac	attcttttgg	atgatattca	1020
gttcaccatg	gtggcagccc	caccccagacc	gattatacct	acacgggtga	tcgtgatgta	1080
cgaagatcaa	ggaaggtttn	ga				1102

(2) INFORMATION FOR SEQ ID NO:531

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1038 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1038

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:531

tttgagacc	tgcatggat	atgccggcac	cggcaaagag	agcggtcagg	ccttcggcag	60
acggaaattg	cgaatgacat	agtcattggg	tgtttgcat	ccgatccgtt	ggtcagagct	120
tgacgacgt	cggccggcga	tatatccgac	tgcccatat	gaggtcggtc	acgaaagcca	180
tggcagtcag	taaaagagt	tgccgaatat	gaatgatgat	cgcttcattg	cctcttcagt	240
tctatcagta	tgaagtctcg	tactcgggta	gcagctccgg	ccgggtgatc	ttgagatgtc	300
tttgagcaaa	agatcggggac	gatacagccc	gctctcccag	tagcattgcc	cccattctcg	360
ttcacgcgt	tgcatcgat	gtaaacctta	ccgtttgggt	ggcatcgaaa	tgtcggtagc	420
gttcgttcaa	agcgagaaat	tatccattgt	cttgatgttt	cccatcatcg	tacatatcca	480
aatttcggca	gacgatggcg	actgaaaata	tactcgaaac	tacacggctg	gctactgact	540
tgccggctgc	atagtcgaaa	gatactcgtg	catctctgaa	catggctgac	tgtagctgta	600
ctctccgggc	aggtaccaag	tccattata	gtcctgccat	acatgatggc	aatggatatc	660
gtcttttctg	ccaccaattt	gcgagctccg	catactccga	ttctatctgt	tcgaaaacct	720
catgagcacg	acgatgcagc	tgagaagcat	cgcggttagc	ttcatccatt	cggcacgacc	780
gagtgatccc	gctctttcca	ttcgttgtat	aaaacgggtg	tgatgcccga	agcatcaact	840
cttcgtcctt	gtccgatacg	tggaataaat	cctgcaggag	gactccgggc	ggagtcgggc	900
tatctgctct	atatttttgg	catgcccggt	cgatctcttg	tacataccct	ttctttatgc	960
gattgcggat	gtcagcattg	aaatgttttc	aggttgatgc	aacccaccag	ttgctgcttg	1020
acgagtaggg	agcgagcc					1038

(2) INFORMATION FOR SEQ ID NO:532

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1257 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1257

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:532

ggcaccttga	agtcgaagaa	aggaatagcc	ttggtcggag	ccttgctcgag	gagccgtcga	60
ggatggcatc	gatgatacca	cgcgtatcct	tgatagagtg	cgcttgcccg	taccgttcca	120
acccgtattg	acgaggtaag	ccgtagcccc	accatctcca	ttttcttcac	cagctcctcg	180
gcatacttcg	taggataagc	gagaggaaag	ccgctccgaa	gcaagcggag	aacgtaggcg	240
taggcccgtg	atgccacgct	cggtaccggc	cagcttggcg	gtaaagcccc	agagaagtaa	300
tacttggtct	gctccggagt	caggatggaa	acgggaggca	atagccgaaa	gcctcggccg	360
agaggaagat	caccttcttg	gcatggccgg	cttggacacg	ggcttcacga	tgttctcgat	420
gtggtagatc	ggataagaga	ccgagtattc	tccgtcacgg	atgtgtcacc	gaagtcgatc	480
ttaccggcag	atccacggtc	acgttctcca	gcagcgcat	gcgacgaatg	gcattgtagt	540
gtccggttcg	ttctcgcggc	tcaggttgat	caccttggcg	tagcatcccc	ttcgaagttg	600
aagataccgt	ccttgtccca	gccgtgctcg	tcctcgcgat	cagcttgcgc	ttcggatccg	660
tactgagcgt	ggctttgccc	gtaccgacag	accgaagaag	atagccgtct	ccttctcgtc	720
catgctcgta	ttggcgagca	gtgcatcgaa	gccataccgc	gcagaggggag	caggtagttc	780
atgtggagaa	catacctttc	ttcatctcac	cgccgtacca	tgtgttcagg	atccttgcac	840
cttctcggtc	aggttgaata	cgacggccgt	ctcggagttc	agcccagctc	tttgtagtgt	900
tccaccttcg	ctttggaagc	agtcatcacc	agaagtcggg	ctcgcgtag	ttggccagct	960
cctcttccgt	ggggcggata	acatattctt	gacgaagtgg	gcctgccagg	ccacctccat	1020
gataaagcga	ttttcaaccg	agagctttcg	ttggcgccgc	agaacgtgtc	cacgacgaaa	1080
gacgcttgcc	ggagagctgc	tccacggcca	gctttttgat	actcttcacg	cctccggagt	1140
caccggtttg	ttgtcgttct	tgtattcgtc	cgacgtcacc	agatggtgtt	tttggttgta	1200
tcgtccatga	cgaagaactt	atcctggggc	aacgaccgt	atagacaccg	gtcatca	1257

(2) INFORMATION FOR SEQ ID NO:533

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 535 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...535

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:533

ggaatgttcg	ctcgagttac	agatattact	cacaagagta	tagaagagta	aaaaatcttc	60
gccatttggg	atttaatgga	ataactgttg	gaactgaacc	ggagatgata	tgacattatt	120
gcatatgaat	aagaaaacaa	cttcagcgaa	acgatagaaa	acctcaagaa	gtttgaagag	180
gcaggcatag	aataattgtg	tcctatctta	caggattggc	cggtgccgga	aatggagaaa	240
gaaatcttta	gctacttccg	atatgtttaa	tcaattacat	ccttatatca	tttcgttgta	300
tcattaacga	tttttcctga	cacagttcta	tttcaagaaa	ttcacagggg	cttttttagag	360
aggcgtctga	acatgagaga	ttaaaagagc	tagcaccttt	ataagtaatc	tgaaaatcaa	420
tacgaatttc	ttcgcaataa	cgatatctaat	cctgttccat	taacgggata	cttgcccaat	480
gataaaaaga	attgatcaat	gagctttccg	atgttattaa	tgccgtagat	gaaag	535

(2) INFORMATION FOR SEQ ID NO:534

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1005 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1005

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:534

aggcataccc	tttttcaggc	gagagaaata	ctgttcggag	acgtcgatgg	gagcttttacg	60
ggagctatct	gttctaccac	atagataggt	ttcgtgggga	agccatatcg	ccgctatcat	120
aattgcgtgc	ggtaatcaca	ccggataagg	gcttcggagc	acggtgttct	ccagcagatt	180
gttgtaagta	gtctcgccac	gtcagagctgc	gttttgagcg	catcccactg	ctgtttggct	240
atgcccctat	tttgtacagc	tcatccatac	gctggaaatt	ggtgcgcgta	ttctcagttg	300
tactttggcc	tgggtcagtt	ggctccgata	caactcggcg	agccctgtcc	gcgtcccact	360
cgatcaccta	cttcggccgt	aaggcgtacg	atctattgcc	catctgaggg	gtaatgttgt	420
tggtcacttc	ggcccgaacg	gagctgtgaa	actcagtacc	tcattcagcg	tgtcggctctt	480
cactatagtc	tctccaccaa	tttggctgcc	atagctgccg	aatcagcagc	agacggccgc	540
tctctttctt	gccattgcag	ctcgtgagaa	tgaggaaagg	caggactaga	ggaggatagc	600
actgcccagt	gtattcgatc	ttttcatatt	tatcataagg	tgtattttgt	tactatttac	660
tttttacgct	cattgttcgg	gaatcccatg	ccgttcactc	tgtccaattc	ggcctttgcg	720
gtcataaagt	cgaattggcc	tgattataat	tgagtcnagc	ctgcaaaaaga	gccacatcgg	780
catcggttag	ctcgacgaga	gtgccttcgc	ctgtctgata	gcgtttctct	gcttctgata	840
gcccttttct	gcacttcgga	cagcctcttc	cgaggccaca	aactctgcat	acagggtacgc	900
agacggtcct	tttggttctt	gattcccatt	cgatggattg	ctctatgttg	ccgtcgttgc	960
atatcgatct	gacggatcga	aaaagcactt	tgcttcacgt	tgtac		1005

(2) INFORMATION FOR SEQ ID NO:535

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 352 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...352
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:535

aggaacgagt	cagagccatc	gaggcacagn	tgcgcgaaga	gttgccccg	ccattncgtt	60
cgatgggtgtg	gccgaagnac	gtgtcctcgg	agccatcgtg	nagaggagat	gaagcggccc	120
gtggatatgg	ccacgctgca	gcagcganca	tccgagaggg	aatctgggta	cgccccctcg	180
gtcgtctgnt	gctatcggag	ccacccttna	tcatatcgcc	ggaagatcta	tcgtatcctt	240
acgcaggact	tctccgtgta	ctcggtcagg	atcganccat	tncatttacc	cgataataca	300
aganntatgt	ccgaaacaaa	ngaaagactc	tgcatatacg	ccgctnccca	ta	352

(2) INFORMATION FOR SEQ ID NO:536

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 512 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...512
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:536

agctcttttg	ctgcagagca	gattcttagt	gtcttcggga	aaggtcaaac	tccggtatat	60
gggcacacca	agcaaacaga	aattttccca	agtttccata	gagaagtact	ncctttcctc	120
gtcaaatagg	cgagaaataa	gaaacgatgt	cagctgattc	ttgcttcctt	gcatgatgca	180
ggacngcgat	tgtcagtgat	tcttgcttcc	tgcacgatgc	aggacgcgat	tgtcagttga	240
ttctttcttcc	tgcacgatgc	aggacgcgat	tgtcagctga	ttcttgcttc	ctgccgatgc	300
aggacgcgat	tgtcagctga	ttcttgcttc	ctgcacgatg	cagacgcgat	tgtcagttga	360
ttcttgcttc	ctgcacgatg	cangacgcga	tttcagttga	ttcttgcttc	ctgcacgatg	420
caggacgcga	ttgtcagttg	atcttgcttc	ctgcacgatg	cangacgcga	ttgtcagctg	480
attcttgctt	ctgcacgatg	caggacgcga	tt			512

(2) INFORMATION FOR SEQ ID NO:537

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 438 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...438

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:537

aggccgctct	ggcagaagcc	gtgtggggag	actatataga	ccaagcggaa	attatgactt	60
tgtctatgct	caaatcaaaa	atctgcgcaa	gcagatgacg	atgcaggggc	gacgatcgag	120
atcaaatcgg	tatatggatt	cggttataac	tcatagaaag	agaagaagat	acttgaaact	180
atcctatcga	atagtatgcg	ttttgtcttg	ctgtcttcct	cgtggtattt	accgcctggg	240
tgatactttc	tattatgtaa	tcgtcgaaga	aatnaacgac	gagacgaacg	attcttggag	300
aactactccg	aacatgtcat	ccgcaatatc	ctctccgaca	atctctttcc	accggctgaa	360
aacgacctta	acaacactta	ctccattcgg	gaattacccc	acaggagggt	atgcgtttcg	420
ctcacgatat	ttactacc					438

(2) INFORMATION FOR SEQ ID NO:538

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 585 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...585

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:538

gattctcaag	aatttcaatt	gaaattttga	caaaaagttc	tatatattgca	cttaatcatt	60
agtacttgaa	gctctatttc	tcttaagttt	cgcccttaat	cagcgtagaa	aattatcacc	120
gctatgggga	accgaagaca	aacagatctg	acaagtcggt	atcgaaaaca	aaacaaccct	180
accctatttc	gcttattcga	tcctgtataa	ttttcgcaag	atgccgccac	gtcccgaacca	240

aaatgatccg	aagaggcaga	aggacgggta	tttgctcaag	ctatcatcca	acggagtaca	300
ccaccgagga	cctttgtcgg	gacatttcgg	acaggtcgtc	cttagctccg	gcgacatcac	360
gggactgatg	atagccatgg	aggagttagt	atcgagtatc	tggcttcggg	ctatagcttc	420
cggctgggca	atatcggcac	atatcggcca	aagtaaaatc	gcgcggagta	agagacaaaa	480
aggaaatccg	tccggttccg	tccaagcccg	tggatatcaa	tttccgttcc	acaccgcaac	540
caaacgacgg	atgcgagca	tgagtgtgaa	gcgcggtccg	agctt		585

(2) INFORMATION FOR SEQ ID NO:539

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1007 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1007

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:539

ggacgaatcg	tcctgtcgcc	gcacgcagcc	cgactgtttg	ttttcgaatg	cagctctgcg	60
ccggtttttt	acttccgacg	cttgcgctgt	ttggagtcaa	cttgtcgtag	aaacgtcctt	120
ccgtcggttt	ctctttgcga	cctttgtttt	gcgtgaagtg	ggattttcac	tacgtcgccc	180
gtcgaaatct	ttgcgagagc	ggaaaagttc	ttatctccgc	cttttttccc	cccggcatag	240
tctttttggt	atccgcatac	tctacatgga	tgcggcgacc	atccacttcg	taccattgag	300
ggtttctact	acgttctttg	cttcgaactc	gtctacatcg	aagaagcgaa	tcggggcatc	360
aggtcgatcc	gtccgatatt	gacacgcccc	ggatacaacg	gttgatcagc	tcgatcagtc	420
ggttgggaaa	catttgatcc	acttgccaaa	attgatgaac	agacgggtca	tcccttcttc	480
tgcttcgccc	ctcctcgttt	tcggttttta	cgatctcccg	aaacctcgtc	tttttttctt	540
cgaccacttc	ttccacgtct	tcggcacggt	ggtaatagtc	gagcatgcat	tgaactccaa	600
tgccattacc	cgacgaatca	attcgtcttt	ttcaatcatt	cgagcttctt	gttcacttcg	660
ttcaagacag	agtcgatggc	cgttgtttct	ctatatccac	acgttctata	cgatcggcca	720
gattgaacag	ttgctttcgc	atatctctgc	tccggaaggg	atgcgtgcac	gttcgatctg	780
cttcgcacg	tgcgtcttat	attcttgatt	ttgcctttct	ccttgacatg	gcaatggcga	840
tcgaaagacc	tgttttcctt	gcacgagctg	tacgaccgct	gcgtgggtgt	agctctctac	900
atcatcggga	agaccgaagt	gaatcacatg	gtcagatcgt	tcacatccaa	tccgcgggca	960
gccacatcgg	tggcaacgag	agttgaaggt	tgcggacgcg	aaacttc		1007

(2) INFORMATION FOR SEQ ID NO:540

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1789 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1789

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:540

tacgttgata	caggaacgtg	cgacaccccg	gctgcaaagg	cttctcgaca	attggaggcc	60
gattatccgc	aaaataccat	ccccgaaacg	cttcggcaca	tctgcgtaag	gatagccgcc	120
gaatcatgaa	tatcgtggac	ttccttagtt	caacggccgt	accattcctc	tttttcttat	180
cgtcttgagc	ggtcattttg	gctctatttc	gtgttcgaaa	tactgattct	gaatacagtg	240
ctcgtctcgg	tatcagacga	cacgaggcca	tgtgcagaca	tcacctgaaa	gagagcggta	300
atcatacgct	caggcaactc	gaagatcctt	aatacccgat	cgccatgtca	gactcacgtc	360
cggaagttct	taccgaagaa	gatgtacttc	gttttttccc	gtactgggag	gggagcgacg	420
actgacgcgc	cggttgctga	agccctcaag	ataacggaca	tcaacgccgt	ccatgcccg	480
catatcaatc	gcgtggagca	gagtttgccc	atgctgcaat	gactgacccc	gccatcaatt	540
ctgctaccgg	ctgcacgggg	cagagcattt	ggaagagatg	cgcaaggggg	tgcctttaca	600
acgggtatcca	atcacccggt	cggctctctg	gatggcatat	gttgatcgat	attatcggat	660
cggtagctcc	cgattatagc	gtattgtcaa	tggttttctg	tccatgatca	gctgcctgcg	720
cgacagcttc	ataccgtggc	tccactcaaa	ggaatggccg	gaggacttga	cagcaagcac	780
aatgatccgg	agtgaaggag	gtactgaacc	gtcttcaaaa	cggtcagccg	gtcgccttct	840
cccgcccgga	ggaatatccg	tctataaagg	caatcgcaat	cggtgatgga	cagcgaatgg	900
caagccagtt	gtgccaaagt	gatactcgtc	atcagggtgcc	cgtttatccg	attttcttca	960
gtggccgcaa	ttcctgggat	ttcacttcct	cggatggctg	agctgggcta	ttcggactcc	1020
gcgcatcccg	ccgagctatt	caataagcga	gggcatattt	tcgatgtcta	tatcggcgctc	1080
cgatcccgcc	agagactatc	gctcgcttcg	agaagaatcc	gcgcgagtgg	ctctcttcct	1140
ctatgaccgg	acttatcgtc	ttgcccccg	acacaaaaaa	acaaatgaaa	cgctccaagc	1200
aactccgcgt	ttatacagct	tcggcgggttc	cggcaagact	catacactta	ccggcggaata	1260
tcttcgttta	gccccggtac	gcgcggggct	ttccgttata	tacaggctgt	cacgttcacg	1320
aacaagccac	tgccgaaatg	aaggagcgta	ttctcgagga	gctgtacagt	ctgctgtggg	1380
cggatcgctc	cctttcgccg	aggagctgat	gcaggagtgtg	gtctgactac	cgagcagcta	1440
caagtcagag	cacaggaaat	cctgaccgaa	tactaaacga	ctattcttct	ttgcgagtca	1500
agaccattga	ctccttcttc	aggaaagtaat	gcgtgccttc	tctcatgaat	tgggactgcc	1560
gggtgggttc	ggatcgagat	ggagcataag	gccgtgctcg	aacaggcttg	tcgtccgctg	1620
ctgncagct	tgggagaaaa	agatacctcc	gacgtngaga	attggacagg	cgtttggctg	1680
aagacctgat	cnaagagggg	cgtggacata	acatccgcag	ggagatagtc	agcttgggtg	1740
atgagctttt	naaagaacag	ctaccctgct	atccgaggaa	ggcaaaacta		1789

(2) INFORMATION FOR SEQ ID NO:541

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 497 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...497

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:541

ggctcccgag	tatctcttca	tcgtctttgt	aacgcccgtg	gggccgtatt	caaagaagga	60
ttcaaaccga	ccaagatggc	catcttccgc	gactatgacg	tgcagctcct	ctgggtacgg	120
gtacgatcaa	agtgggcggg	aactatgagc	cggtatgata	cccacagtga	aagctcacga	180
aatgggctac	tctgcactat	cttcttggat	gccaaagaaa	agaagtacat	agacgaagcc	240
ggtcgcgcaa	cttcttcgcc	atcaagaaca	atacttatat	cactcccgaa	tccactctat	300
cctgccctct	atcacaaaca	agagtctgat	gcagggtggc	cagatctggg	tctgaaggta	360
gagcgctcgc	cggtagccga	agaagagctt	gcactttcga	agaagcaggt	gcttgtggta	420
cggcagccgt	gatcagccct	actccgagat	tgacgaactt	ggagaacaac	aaacagtacc	480
gtcatcagca	gggacggg					497

(2) INFORMATION FOR SEQ ID NO:542

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 516 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...516

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:542

atatcgaccg	atgcgaacga	aacgacaagc	gcaccatcga	caacgtcatt	atcgcgacgg	60
caagtcgcgt	ccgttctata	tcaaaccgtt	cagcgtcacg	gtgttacgcg	agacaaggag	120
tacaacctta	cgcaggaaac	ggccgggtgc	gggtgatgta	tttcaccgcc	aataaaaatg	180
gcgaggcaga	gaccgtagga	tcacccctca	accgaaagct	cgccagcggg	tactttcttt	240
cgagaagact	ttagcaatgt	cgccatcaag	gggcgaagca	gcaaggggcaa	tctgtgacca	300
aagcagaggt	gcacaagatc	ctgttcaaac	agcanggggt	cttcaccctc	ggagggcgga	360
aangtttggt	tcgatcgggg	cgtgatgcga	ctaactacga	ccgagcangg	gcgaatatct	420
ttgggcgaaa	ttcccaaagc	caaccgattt	cgatggcttg	gtaaatcctt	tgggattaaa	480
ccggggggacc	ggcttattac	ctaacaattc	ccataa			516

(2) INFORMATION FOR SEQ ID NO:543

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 989 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...989

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:543

gacgctcatt	accgttccga	ccaatgccag	aatgctgaag	aggagaagaa	accgctaagt	60
gaacgttcct	cctcgctgtg	cgaggctatg	atgtcttcga	acgcaggatt	tcggtatagg	120
gctgccccgt	aatacgggag	taaacggctg	tatgctttga	atcaactgct	ccggatcggc	180
cccttccgaa	tagccgccag	tacggaccac	gaccaggcgg	atgactgggg	ataagggatg	240
aagagtagct	cggatgcggc	tccttgaatc	cgccgaagtg	aacctcggga	gcatgccgca	300
ataatagaac	tcaccggcct	tgccccaatg	aatgacaccg	tccgcagatt	ggctacatcg	360
aaatcgttgt	aggccgatcg	gctgagatag	agggtgcgatc	gggcttgtcg	gccttgcgac	420
cgttgggctt	catcttcaga	tgaacaggct	cagtgccacg	gagtctatgg	agaaaatctg	480
catggagaga	gcctgccacg	gtattcggaa	gagttgttgt	tgccctcggt	cagcggagtc	540
cacgcgtgag	gcctataccc	gttatgccgg	ggattttggc	tatttcggtc	tcatcgtact	600
gacgatctgc	ggatccagtc	cgaaaacgct	tatgatcggt	tgttcctgta	atcgtagccc	660
atgtcggagt	tggtcatata	gtcgattgca	cggccattac	catggtacag	ctcagcagga	720
tcatcgtaat	ggcatctggg	aaatgaccat	aatctgcgag	aagctgcttt	tgaccacacg	780
gcgaacttgc	cgctgaccac	ctcgatcgga	cgaaaccgcg	atatgaacca	tgcggcaggg	840
ccgcacacac	gatgctcagc	aggagcatga	agccgattag	cataggatga	gcgtgagcga	900
aatatgccgt	gccagataga	gatgcgtatc	gacaggcgat	cgaatacggg	ttcaagggcg	960
aacatgccga	atacggccag	agcgtgctc				989

(2) INFORMATION FOR SEQ ID NO:544

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 533 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...533

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:544

gatccccctgc	ccgaattttc	gtatgcctat	cgcaacaaag	gtacattttc	ttttattgta	60
aaggctctatt	tagcattttt	atgcaggcac	agcagcagca	ttcgacccat	cgtttaccgc	120
tccggatcgg	cgtccaggca	gaataccaca	ttccgaagag	ctgagagaga	acggggagaa	180
aatcgagttt	acgctcagaa	ttgttccacc	caacgcccct	aaaaacgtgg	cgcgagattt	240
ttttcttttg	gtgcgggaag	gaaaaaattt	acgcgcgaga	acgaaatagt	tttgttcgtg	300
tttttcagga	aaacacacgc	cgcaatctgc	tcgtttacgg	ttctaaatcg	cgaacgaaaa	360
tgtgcgaaga	aaaggaaagg	atacttctca	tgatcgattg	ttcagtcgga	ttttgagtgt	420
gcccgtatcg	gattggctctg	cgctatgctc	cgctttattc	tttgcccttg	tcctaaattt	480
gcaccacgtn	gttttatacg	ggagagaact	actccccctc	cctactgact	caa	533

(2) INFORMATION FOR SEQ ID NO:545

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 482 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...482

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:545

```
gggaagaact gagcattggg gaatctcttc acatagtctg atactacgtg ttaccgctgt      60
cacggaggtc aagcatgcat cggaatttct ccggtgtgtg ataccgtcgg ggtcgtaaac      120
atagccgtca ggaccggaga tcgtaacacc ttaatgcccc actcggtagc tttctgagcc      180
acaccccaag caacgtaccg aatccggaga tagcaagagt tttgcccttg tagtctacac      240
cgtttgctta cacatgttct gtacgaagta aacagcaccg aaaccggtag attcggacgc      300
agacgagaac cgccgaactc gaatnccttg ccggtgaagc tactgtgtgc tcgcgagcga      360
gttcttctga cataccgaac atataaccta cttgcgaccg ctacgccgat gtcacccggc      420
aggaatgtcg gtgtagggc catgttgccg cacaatttc ggcatgaag ctctggcaga      480
aa
```

(2) INFORMATION FOR SEQ ID NO:546

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1470 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1470

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:546

```
agccaaatag agatagacga gtcggtcttt tccattttca ttggtggatt atcgcagaga      60
aagtgcggtc tcagacgatt tacaccgcag aatcgttctc tatgagactt tgagccaatt      120
ccttgtgatg cttatcagta gtcagcccg aaagaaaggg gtatcatagc agtcgcccgt      180
gcaaagatcg catttgagta atggctcaaa tagatcatcc cgtcgcatat ggctatcagg      240
```

cgaacacggg	cagcagacct	gcagtaggat	cggccaaggc	ttccgtctcg	gatctgctat	300
acgtccgatg	gattcacccct	gtgcatccgt	gatcgggtatc	caccctcgtg	gtgcatttct	360
ctacgtaccc	attcgagtcg	aatcacctca	taatatagag	caataacagc	gatacacccg	420
gcagatacaa	taagagggtgt	gaatcctccc	caccctgaag	tagagcaaaa	gtcccagaag	480
gaaaatgaaa	ataacgatat	acgcaggatg	ctgcctgtaa	tgcgtccata	ctccagcata	540
ccagacgttt	gtgcgggaaa	tccgcatagt	ctccctctct	gccactgctc	tgcggaacag	600
cctgcacgca	gccacagcca	agagcatagc	agccagatcc	agccaagggtc	ggtgagcggg	660
gaagtcttgg	atagccacaa	agtaggagca	aaagaacaag	tacacccagc	gaagtcaata	720
cggacggctg	acagtcttgc	tttttcgacg	aaaaaagagc	atccctccga	tgattgcaaa	780
gagacaatgg	cagccgtcca	tgccaccatt	atccccgcac	tcggcagcaa	cagagcaata	840
agacgaccgg	cagaaaatcca	cccatcggtat	tagaccccaa	taggggtgcta	tatccggata	900
cttcttttga	gtcaaaaatag	ggattcgttt	ttcgtttatc	agtataacag	ccatagaccc	960
gtttggttgt	catccggcag	acacactgta	ttatgaaaac	gattgagggc	tgactccggg	1020
attcgggaaca	gcccttatcg	tcatacccaa	acaaatgtat	ctatcagata	ttaagaaaca	1080
aacgggtatt	gttttccacc	aaactcttga	tttttccctc	cagatccgag	gcaaagaagc	1140
ctcggacagc	aatcgggcta	taggctgcag	gtgatgatat	ctgtccctat	gagatcgtaa	1200
tagccggcct	cgagtaatgc	atatgttttt	ctgatgcaga	tgaattgtat	gctccgaaca	1260
gagaaaagag	gttcgttgaa	acattacgcc	ttgctttttg	atcgcgacat	aatctttctc	1320
ctcatgtata	gataacgttc	ggggtgtgcc	aatacgggag	agaggccttt	gatcgcagat	1380
cggcaagtag	ccccattaat	cctataggag	gagccatata	gaggtttcca	ccaaaatgta	1440
acgatctccc	agcgtcagaa	gcggttctgc				1470

(2) INFORMATION FOR SEQ ID NO:547

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1296 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1296

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:547

gaagttgcgt	cggccggcat	caaccgactt	gcatgatgg	accattcggc	gggctatcgt	60
cccgaacttc	ctccatatag	cgcatgccga	aaggctcggg	ccgtatatat	gacgacaaat	120
tgcctatcga	ctaccagacg	gcagccaggc	ggaagagttc	aatatgaatc	tctccacagc	180
cgctctgaac	gggggtaaga	ctacgaattg	ttgtttaccg	tacctctcac	ccgtctcgat	240
gatatcagcg	aatagagggc	atccacctga	tcggccatat	tacagaagag	gccgcgggtca	300
cctcctcgtg	gcacgagacg	gaacggagat	taccttggtg	gcgaaggatg	gaatgcagca	360
aaggctctga	atgggtagta	tccgactgca	aacctcacag	aaggggaaat	aaaaggacgt	420
ctgctccgac	tggtcttgcc	ctcatgggta	cttccttcgt	gcagatggcc	tatagcttta	480
ccgatatggc	tggttagggc	ggttgggtag	caagtccgtg	gcagccgtag	gtattgtggg	540
gtactgacgt	ggctctccag	ttccatatcg	tcaatcaata	agaccggcgt	gaggtgacga	600
taggccacag	cctcggcaag	ggggccatcg	aggaagccga	cgatacgctt	cgcacaacgt	660
ttcgaatgcc	ctactgatct	cctccgcagc	gctcttttgt	ttttcctttt	cccacacctt	720
ttcctcggta	tatacatatt	gaggacgatg	tacacgcttt	ggctcttacc	tacctgcgca	780
tagtgcgatg	ggcctgcctt	tcacctttgc	agccaccgca	ttcagcggta	tctcaacgga	840
gccggactca	gctccatacc	cttcaaggtc	agtagcacgg	ggtgggtactc	aatatgatct	900
tggatccctt	gctgatattc	ggtttgggat	ggggacgatc	ggagcggcca	tagccacgct	960

gatcgctcag	gtattcgtat	cgttctattc	ttttacaggc	tcagacggca	ggataagctg	1020
ttggattgct	cccgttcctc	gtccgaccgg	acaatataca	tagcgggtcg	atcttgcgat	1080
cggcctgcct	gtagctgctc	tcaactccct	cttcgccatc	atcaatagat	gcttggccgt	1140
ctggcttcgc	agcaaggagg	acatatcgga	gtggcacgct	gacaacaggc	ggacaactgg	1200
aagccatcac	ttggaacact	tcgcaggatt	cagtacggca	ctggctactt	tcgtggctca	1260
taattacgct	gccctcaggg	caaacgtata	ttttct			1296

(2) INFORMATION FOR SEQ ID NO:548

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1604 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1604

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:548

tcttcagtct	tggcaaagat	gaactgactc	agaaaatgat	ggtcaattca	cgggacgcaa	60
atgggagttc	actttcacta	cattgggttac	tttcggagag	ctctctttgc	ttcgtttcct	120
cttttctata	gcaccagctt	cggaggacat	attgggtatg	gatgctgac	ctcttctgct	180
tcattatcca	agctgttcct	acgagtatca	atccaaacat	ggtaatgtat	gggggaggaa	240
aacctccaaa	tactgctttt	catcaatggt	gtactggctc	cggttctgct	cggaccgctg	300
tttccacatt	ctttacgggc	agcagcttcg	tggtaaacaa	gatgcgatgt	tcgacctctc	360
cggcggcaac	cagatcgttt	ctgcctggga	gccttcaatg	ggtggcaact	gagaggcctt	420
gaagctgttt	tgaacctgtg	gacgtggttc	tcggattggc	tgtattcttc	cttgccagag	480
tatcggctct	ctttatttca	tcaataatat	cgatgacgaa	agtctctatg	cggcagccaa	540
cgccgacttt	gggccaatac	ggtcgcattc	ctgattttct	ttctggcaac	atagctttcc	600
tgctgactac	ggaaggattt	gccgtgaatc	ccgtttcaaa	gaggtgtata	tggagccata	660
caagtacctg	tacaatttct	tggatagccg	gccgttcttg	ctgtattcct	gttgggagta	720
atcctcgtac	ttggcgtata	ggtttgactc	tactgcgtaa	aggcttcaaa	cgcggaatct	780
ggctcacggt	acgggaaccg	tactgactgt	gcttgcccta	ctacttgtag	ccgttggaac	840
gatacgtctt	ggtacccctc	cacatacgat	ctgcaaagtt	cgttacgatc	gagaatgcca	900
gctccagcca	tttcacgctg	aaggtaatga	gtacgtctct	ctccttattc	ctttcgtttt	960
ggcttacatt	ttctatgctt	gcgcgcactg	gacatttcgt	aaaatcacia	aaaaagaaat	1020
ggagcaggag	atcacgtcta	ttgatctctg	acagataatt	ccacaatctg	aggctgtgca	1080
ttgaggttcg	atcccttgat	acagcctcat	tgcttttata	tatttcgcaa	taatcatgac	1140
cgacgatttg	aaaagacggc	tatatttacc	tgaccaacga	tagcaatatg	gctcagtcac	1200
catatcaaac	cgcaccgcat	cggatggctt	ggctcttagc	ggcggagcgg	ccaaaggctt	1260
tgcacattcg	ggagactcca	tgctcttgag	gacaatggga	ttcgtcccga	catcatagca	1320
ggtcgagtgc	aggagcgttg	gtagctgcac	tctatgccga	tggatacagg	ccgaagagat	1380
tccacaatta	ttccgaggca	aaaatttcag	attcctaaca	ggtggcaaat	accacaaaga	1440
ggtgtattca	gcacccaacg	cttcaagagt	ttcttcgctc	gactttacgc	cacaagaata	1500
tcgaagacct	accccttcca	tcagaatagt	ggcaacggnc	cttgaccgtg	gagttgtcaa	1560
agttttttac	aaggtctctc	cgtcggagact	gtcacggctt	cctg		1604

(2) INFORMATION FOR SEQ ID NO:549

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1045 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1045

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:549

ctgcattgga	cacgttggct	categttcga	tgaacctatc	gtcatctgtc	gatccggaaa	60
ccaaactcat	gcgcggtaga	aatcaggatg	gtagtttcgg	acaccttttt	cccccttcaa	120
atggggagat	gtattcacgg	agggcaagcc	tggcactaca	cttggtcggg	ctttcatgat	180
gtgcaggggc	ttatcgctg	atgggaggag	atcgcccgtt	cgtgtctatg	ctcgattcgg	240
tattcatact	cctcctatgt	tcgatgagag	ctattacgga	tttgtcatcc	acgaatcaga	300
gagatgcaaa	tagcggatat	gggcaattat	gctcatggca	atcacccata	cagcatatga	360
tatatctgta	taatcatgcc	ggtcatccat	ggaagctcag	gagagactac	gcgaagtgat	420
ggggcggtc	tatcgtccta	cccggatggg	tattgcggcg	atgaagacaa	cggacagact	480
tcggcttggg	cgttttctct	gctttaggct	tctatcctgt	tacacccgct	acggatcaga	540
tgtgctcggg	tcgccgattt	tttccaaggt	aatactctct	tttcccaggg	acacaaaacg	600
gtgttgcatg	ctccggccaa	cagtgcgcag	acgccttcat	ccgctcgatc	agcgtagaag	660
gaaaagaatg	gagctgcaat	tacctgctca	cgaacagctt	cgctcttctg	catccattca	720
atggatgatg	gacacaaacc	caattataat	cgtaggtatga	aggaaagtga	cagaccttat	780
tcctctccac	ggagcaacag	cgtcgcgcta	atcacagtaa	ttaatgatac	attccccact	840
tcggactatg	aatacgaaca	aagcatttac	gccccgacga	tcatactgat	gagcttgctt	900
ggctttttcc	tccttgtgct	aagctctgcc	gatgtaaaga	tgatgtccag	accgacatat	960
ttaagggggc	tgtggactac	tgaatcctta	tatgggcaat	atcagtcatc	tgctcattcc	1020
cacttttcca	ctgtgcattg	gcccc				1045

(2) INFORMATION FOR SEQ ID NO:550

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1358 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1358

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1181

ccctgccaaa	agtaacaaag	gaagcaatga	ccatggacaa	aagaactgtc	gacagccagt	60
attacagagc	ctaacgtaaa	gagggccggc	agtatgtgac	gggcttcata	ctccccggat	120
gccgtctttg	caaataaata	cgggcaaacc	ggagttgtac	acctgacgga	agaacttctt	180
aaaatcgatt	cgccgttatg	gaaaacaaag	gcttccggaa	acaagcatac	gttgatatccg	240
gccttaagag	acgcagacta	aaatcaatat	cttcaccgaa	gcgcatctct	tccgaaaacc	300
accgagttgc	cgatagaccg	aaagtttgca	gccaaaattg	aaatgcgagg	atagaacttg	360
tccagtcgta	ctcttctacc	cccacgaatg	ccccggtcgt	gaagaaaagag	gtcatcgcat	420
agttaatggc	tttttgtatg	gtgagaatcc	ttctgctgct	gcatcagggc	cgccgaaagc	480
atctgcttgc	tctgttcgat	cctttttttt	actgcggcta	tataaccgct	cggcagtaga	540
catccgagtc	caatatcaac	agatattcgc	ccacagccat	tcgtgcacaa	tgttgcgcgc	600
agcagccggt	cctccattcg	gcactcttac	atactgtttc	ggagaagttc	tctgacgcga	660
gtccacttct	ttgtcgcagc	acacagcgaa	ccatcttcta	cgatgatcac	ttcaaagtcg	720
ctattcgtct	gtatagcaga	ctctccagca	gctcccgcac	ttcgtcgggg	cgattataaa	780
cgggataata	atagagaaga	ccgngggggg				809

(2) INFORMATION FOR SEQ ID NO:1182

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1028 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1028

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1182

ctgtctgata	ttgcccaggt	agatggcttc	tggatggcgc	aaagatgaaa	tgtccaatgt	60
gcagacgggg	catcggaactg	tactggaaga	ttaagaacgg	agtttaaccg	tccgatcgac	120
gaatcgaagt	tcactgttac	ttctctcaga	aaggttctct	ctaaactatg	gaagtgaaga	180
aaaacacagt	gggtgctgcc	ttctgatttg	gttcgtggcc	attcttctct	tccactcctc	240
acggcgtggg	gacaggaagg	ggaggggagt	ggccgataca	gattcaaagg	attctggata	300
cctaccatgc	cgtagcgagc	tcttctcctt	ttgatttcat	gagtcgcgta	cgagagttag	360
aggtgagctg	gagaggtcgt	tcggtaattc	gaagtagccg	tatcggtcaa	tgccacctac	420
aatgctctac	tgaaagacga	gccggcttac	gtttacgtga	agccttcttc	gagcatcagg	480
aagagcattg	gggtttgcgc	tcggacgaca	gattgtcatt	tggggggctg	ccgacgggtg	540
cgcatcacgg	atctgatctc	cccgatggat	atgaccgagt	ttctggcaag	gattacgatg	600
atattcgtat	gccggtcagt	gcattgcgtt	tctctgtttc	aacgaatcga	tgaaagtggg	660
agtcgtggta	ctgcctgtat	tcgagggtac	cgtctgcctg	tggatcctcg	caatccttgg	720
aatatcttct	cccttcgccc	attgctcagg	ggatgaatat	cgtctggaaa	gaagaagccg	780
gcaaccggcc	ttcaagggtg	ccaatatcga	gtacgggtcg	cgatggagca	ctagctctcc	840
ggatcgcagt	tgcgtttggc	tgcatattgc	acatggaaca	aaatgcccg	catcgaagta	900
cagggcattg	tgccgacgga	aatcatcgta	gcctcgctat	taatcgtagt	ggattgggtc	960
gcggcgacct	cttcctgacc	cgtcggacag	ttggttttca	aggagagagt	tgctttcaat	1020
atcgacca						1028

(2) INFORMATION FOR SEQ ID NO:1183

ttcgaggtga	acttctcttc	ggggaagagg	ggtgtgagat	gatcgaaggg	cacgcgtcgc	2160
ggatctcttc	ggggctgcga	ccgttcacac	tccgcagctg	cacgagggga	agtacttctc	2220
cccctctctg	ggcggacgga	tagtacctgc	cacgcgtcgc	ccgtcttgag	tccgttgtgc	2280
ttgaatctgc	ttgcttgga	cactacacat	tgc			2313

(2) INFORMATION FOR SEQ ID NO:1180

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 582 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...582
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1180

tgactgtttt	tctgtgtcgt	tataggtatg	aatacctcag	ctcctctata	cttgtgcgac	60
acgctctacg	ggtgaaaacg	ataccgaaaa	gatacttctg	attttgcaa	ggtctctttt	120
tgacttgata	cagattgcct	cgcaattaat	aggaagttga	atztatcgtg	aaacgaaaag	180
tatactctat	gccgtaggaa	gagaaacaaa	aacggccatg	gcgatccgaa	tacgatacaca	240
cacggctctt	tctttcaaaa	aaaacagttg	ggagatttcc	tttctaaggg	aagagtatca	300
aggtgagatc	acccttttcg	tggtgtcatt	cgtcagatgg	aaatatgctt	cctatcagcc	360
agtttctcca	tagtcagaag	caggcgatca	cagtcacctc	atcggtattg	atcaggatat	420
ggctgcggtc	gtgataggca	gtatagcagc	ctctccctca	gaaggatgcc	aatagaatat	480
tttggcaggt	tctctgccgc	cggaaccttc	ctcagactgc	gaagcatcaa	ggcaagagcg	540
tacgtgcctt	tgatgacgac	attggatcan	gtccatgaag	ca		582

(2) INFORMATION FOR SEQ ID NO:1181

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 809 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...809

caccctccct aaacagagag aactgacgga ggggtctgca aaaagggcag atagttacat	840
gtttttgccg aaaaagaact gcatc	865

(2) INFORMATION FOR SEQ ID NO:1179

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2313 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2313

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1179

agacggtgag	cggatggact	tccgtcatcg	taagctccat	gttcttgggg	gagtgcagct	60
gatatgcctt	ggggtgatcg	gtacctatat	atccaagaca	ataaaaaatat	agtcgcaagg	120
cccctgtact	tggtggccga	aagcaattcg	cagcagacga	acggtagcga	acggcagcta	180
tcgtctcctc	ctgcgggcat	cagttcgagc	ggttcggaga	agacgataaa	gcccgcagggc	240
tatgagatac	aagcccatac	cgactatagc	ggaggccccc	aacaccttcg	tcgagaccca	300
cacacctacc	aataccggac	gtaaagcggc	tccatagctt	cccgcgcaag	aggtgagcgt	360
ggagccgatg	ttgcgtacag	ccactaccaa	agcagattgg	aaattaccgt	cggcaccaaa	420
gccaagagca	ggatattgcc	catgaagccg	cgtcgggaag	aggagccact	tcgccctgtc	480
tgaccaggac	ttgatcaggc	aaaaacctgc	ggctgcgacg	aagacgtaga	acgtcagccc	540
cgccccggca	tgattcggat	ccggctccga	ttgacaaaga	cgatataggg	gcatagcaaa	600
gcgcccagat	ggcgactatc	acaaagccgg	taagcccacc	cgatcgcccc	ctcccgtaaag	660
gcccatacag	aggcccacgc	ctatcaggcg	atgaaaatgg	ccgtcaatgg	cacgggcgaa	720
agtctttccc	caaagaaaga	agcatcagag	ccgtgacgaa	cagcggatag	aggaagtgga	780
tggtgtggct	acaccgctgg	ccatatagcc	atagccgtga	aagaggaaaa	gtgcgtgccg	840
gcatacaaga	agcccagcaa	taccagcggc	cctatatccg	caggctgact	ttgaagctgc	900
cgcccagagag	gcgatgcagt	ataccgatgg	catggctcgc	aagaaaaagc	gatagaagag	960
aataagctcg	aacgaagcac	cttagccgaa	accggcagcg	tgaacagggg	gatgagcccg	1020
aatcgtggcg	cgacagtata	ccgaccgcaa	gaccgtagag	gcgtgaagat	gtcatgaagc	1080
tgccgtaacg	aatattgagg	attgatactt	ataataataa	ggtatagagg	acgaaaccgt	1140
aagccgcacg	gagaagaccg	aaagacgata	tgcccgtctt	tcgacttccc	tccccctcgt	1200
ctgccggtct	gcatccggat	agaggcggct	cgtcactcag	agtcctgtcc	gctgccgcct	1260
cctctcttgt	cgggaaggagg	cggcggcagg	aaactgatca	gttgttcatc	gaggcgagga	1320
actcatattg	gtatgcgtat	tctccagctg	cttacgcaca	aactccatgg	ctcgacagga	1380
ttcatgtcgg	agaggtactt	gcgcaggatc	cacatacggg	tagcgtggtc	tcgtcctgca	1440
gcaagtcgtc	gcgacgggta	ctgctggaca	gatgtccacg	gcgggggaata	tgcgtttgtt	1500
ggacaggcgg	cgatcgagcg	cagctccata	ttgcccgtac	ccttgaactc	ttcgaatatc	1560
acctcgtcat	cttagaacc	gtgtcgggtca	gcgccgtggc	cagaatgggtg	agactacgcc	1620
gttttcgatg	ttgcgagcgg	caccgaagaa	gcgtttcggc	ttctgcgggc	attggcatcg	1680
acaccaccgg	agagcacctt	gcccgatcgc	ggctgacggg	attgtatgca	cgtgccaggc	1740
gggtgatgga	gtcgaagagg	atgatacgtc	atgaccgcac	tccaccattc	ttttggcttt	1800
gttcaggacg	atccggcgat	cttcacgtga	cgctctgccg	gctcgtcgaa	ggtggaagcg	1860
atacctcggc	gttcacactt	cgcgccatgt	cgggtgacctc	ttcgggacgc	tgatgatgag	1920
caggacgatc	atgtacactt	cgggggtgatt	ggctgcgatg	cattggcaat	gtccttgagg	1980
agcatcgtct	taccctgtct	gggctgcgaa	cgatcaggcc	gcgctgtcct	ttgcctatgg	2040
gggcgaagag	gtctacgagc	ggacggatat	tttatcgttt	acggcacgga	tgcccgggtgc	2100

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...575

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1177

tcgttcccgt	caatacccgt	ggcagacaga	agcgcgagag	tatagatcgc	tcgaggaagc	60
tttggagagc	gatttgcccc	ttatcacttt	cccggccgct	tttgttcccg	tctgatcgaa	120
ggtaagggtcc	aggatacccc	gtggaagaga	gctttgtccg	tcaggcctac	gccagcaaac	180
gggatatagt	tccacttttt	tcgatggact	taattcaaag	cgtttctacc	ggatagagcg	240
tctcctcagc	tccttgggtc	taagttcaat	atcgggatgg	ctttgctgcc	ggataaatgt	300
ttcggagcaa	gggacgccat	tttcgcgtat	tcgcaggccg	gccattccat	ggcaatctct	360
tgcgtctgcc	ccccgagata	cggccgagca	ggacttcata	tccgttccat	ggtatatgac	420
ctcagcccgt	cggccttaaa	gaataaccat	taaaccatg	tgcctcgaac	ccataattgc	480
tccgatttca	ccgagttgct	cgagcaggag	ctgactgccg	atcgttttct	gcggatgaca	540
acaaagcccc	gcaatgagat	ctatgtttta	cnggc			575

(2) INFORMATION FOR SEQ ID NO:1178

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 865 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...865

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1178

tcgaactcgt	gtcggatgag	acgaccgtct	cctcggcgga	tatcaaggcg	tctttgaccg	60
cgctgccaaa	gtgctcatcc	gtctgcttca	ggacggcaga	gcattgattg	tggcgacatg	120
ggtagctacc	gccccagcat	tacggcgagg	ccgggttcggg	cgttgatagt	gccgacaagg	180
tgacgggtgga	gcttgtgaca	aggcgaagg	catctatacg	cctcgtatga	aggtcaaaac	240
tgtcccaagg	gcgtccgtat	ggagcgtgcc	gagcgtgtcc	ttgatgtgcc	ttaccctctt	300
cgatcaagcc	gaatgagaac	aacagcggcg	gatcttcgtc	ctcgacaaca	acggacacgc	360
cggcctgtaa	acaaagcatt	taatagcgac	aagataaatc	tgaacgtcct	tattcgacaa	420
tacatcccta	aagggttctt	ttcatcgata	taacgaccaa	acagatctcc	attatacaca	480
acaaaccgaa	ctcagaccag	gaaagaaaact	cggattcaga	acgccgttcg	aatgcttctc	540
ccaaattcac	cttagtggtg	catttatattg	tggaaatctgc	acagccaaaa	aaagaaagaa	600
aaacgcaacc	gaataagaat	aattgctata	tttgcgtcgc	tatcgggatg	tagcacagtt	660
ggtagcgcgc	cacgttcggg	acgtggggtc	ggaagtgcga	gtcttctcat	cccgacaacg	720
ccgtcaatat	tccttgggat	tattgacggc	gtttttttgt	ctgtaacaaa	tgcaaatcct	780

tctcat	acga	gaggat	ctat	gggtct	cctac	gagagg	atac	tatggg	tctc	ctatgag	agg	240
atactt	gggc	tcctat	gaga	ggatac	tatg	gtctca	tacg	agaggat	act	atggc	tattg	300
atggaag	atg	ctatct	gctc	tctgnc	cggg	tggcag	gttc	gggagag	agg	ttccg	tatga	360
gctgtaaaa	c	cctgtc	gcac	ggcatt	tttct	tgagatt	tca	ttgtca	attg	actgat	tttt	420
cagtgtc	ggt	atagat	atga	aacctc	tataa	gctcct	ccat	gacttg	tgcg	ttacg	ctcat	480
aagtacag	tc	aaagca	aaaa	agtcgc	ccttt	tgattg	ggcg	cttttt	cagt	ttgcat	atga	540
ggcaaacg	cgc	ataaag	agag	agcgga	aatat	cactcc	acgg	ctatcg	tata	agatga	tagt	600
caaggggg	gat	gccacca	aaaa	gagaact	ttct	gttttg	gaac	agtttata	cgc	gccccg	cggg	660
aagtgggg	gat	gctgat	atgg	tatttccc	ga	gacga	accgc	acagcc	acga	caataa	aaggc	720
agcaatga	ac	tgtatatt	ttc	gatcgg	ggaga	gtcgtg	taca	tgagtccc	ac	atagacc	gct	780
cctcgatc	ag	gcacgc	catg	gcatata	tata	ccttg	cggaa	aataag	cggc	gtcgatt	gat	840
cagaatat	c	cgaatca	tac	caccga	acga	ccctgt	aatc	gtcccc	atcgc	aatggcc	cagc	900
caccacgc	at	atccgc	actc	gaaagt	tttta	gcacacc	ccac	tatggg	tgaac	aagcct	atcc	960
cgacagt	atc	gaaaat	gaaa	ccgtat	gatt	cagtcg	tact	acatact	ttcc	gaaata	acaat	1020
cgtgaag	ata	agagc	gagca	tagagata	aaa	aaggtag	gaa	ggccgg	gagca	ttcaaaa	acgc	1080
gggacatt	aa	gcaaaa	atgtc	gcgcacc	gta	ccggcac	caa	cagccg	gacc	acaccg	acca	1140
cataggct	tc	gaacca	aatcg	aagcgt	ttcgg	cttg						1174

(2) INFORMATION FOR SEQ ID NO:1176

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 509 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...509

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1176

gagatccg	ta	ttgacatt	ga	gggcaa	agcc	atgcat	cggt	atgtg	ccgat	gcttttc	acc	60
cctatcgc	gc	agattttg	cgc	agtacg	cccc	ggatat	atcg	atccag	ccat	acgccg	gatg	120
ctccggcc	ga	acgttcgc	cct	ttcagac	gaa	tatggc	aatg	agatcg	atga	tacact	gctc	180
aagcatttc	g	atatagt	gcg	taagcc	gata	ccgtatt	gtt	cgagat	cgaa	tatggg	gtat	240
cccgtatt	tg	tcccgg	ccccg	tggtagg	tga	tatcccc	tcc	tcgttct	tata	tgaatag	tcg	300
gatgtngc	ga	cttttcag	ct	cggactc	gga	cagcaac	aga	tttcttc	atg	acccgt	gttt	360
gcccgaag	gtt	agaacc	ggnt	catgct	caca	gagaac	agcg	tattttg	cgg	nttcct	gttt	420
tccaattt	gt	ctggct	ataca	gatcat	ggaa	agaagct	tgg	cgttgca	aagg	tcagtgc	ccga	480
tttcgta	acc	atgccgt	ncg	ncagtc	cctg							509

(2) INFORMATION FOR SEQ ID NO:1177

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 575 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1345

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1174

aagggttttc	naaaggcagg	aaagtggata	atagtccaat	tagaatgtga	gaagggtgtt	60
tacataatat	tgacgggtct	tttattgctt	gtattgggtg	cgtgctcaca	ggagcactcc	120
ttccgagaat	cagaacgaag	acaaaacgtg	cattttgaat	gctcctgttg	atgtcgtttt	180
tgctatcgtg	accaacatca	agaatggcat	tacagaagtt	ctttggatga	tttggagatc	240
atccgatcca	aggggatatt	gaagaatggc	gaagagactg	ccaatggcgt	aacttcagat	300
tcaagacact	tgagaagaga	ccgcattctt	tctacagttt	tgaatggata	gtaaaatggt	360
cacagggaag	tggcaagcaa	tatttgaacc	gaggaaggag	gtaaaaccct	attcactgca	420
acagaaaaga	tagaatacaa	gacctgttct	atcgtttggg	tgggtatgct	tttatggact	480
taaacaagtt	atgaccacat	accaagaaga	actcacagct	cgaatagaac	ttgaaaaaga	540
gagcaataaa	gacgatataa	ccgattgttt	gtaatagatt	taagaaatag	atttgtacca	600
tataattgca	atacgctgta	aatcaatata	gatttgtttg	aggaagaaga	agggttaagct	660
acttgctttc	gttagctgca	atggcctatt	gagagcggag	caaaaagcat	cagcctcttg	720
gaacgcaatg	aatgaacccc	ggtattagtc	ctgagttcta	cattgtactt	gctgttttgg	780
ccaattcggc	acccatgtaa	tccgatagag	gacgcccttt	tgctcgtgtg	aatcgtatgc	840
aattaccttg	cgcagggttt	tcgtctcttc	atcgataagg	tagcttccgg	ctgcaaacc	900
ataaaatcga	gtataataag	aagtatgtgc	caagtaataa	ccagacaaat	tggcaagaga	960
gaaaatccac	aagataagtg	aatgatcggt	acaacgatgt	aaaatatcga	gatccaaaat	1020
ctggctccag	cttttcagag	aaccctcgca	cgtagaattt	tttctgggtt	gtcattttca	1080
gtcttgttta	ttgttttcga	tggccctggt	catttcctca	cagaatgctc	cggctggtaa	1140
agctcgacaa	aagtatgggt	tttcatggag	agtagtttac	tcttcgagtg	tgggtttcat	1200
cacattcggc	tgggacatac	tccgtagagg	ttttcctcca	gtgagtattc	gtccaaagcc	1260
gactatccaa	cgcacgccc	gttttcttca	tcaatgacta	ctgccaccgg	catacaagcc	1320
cacggatgag	tgcaggaatg	taaaa				1345

(2) INFORMATION FOR SEQ ID NO:1175

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1174 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1174

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1175

tcatgcagtc	tttgcgaacc	tcaagtatat	acctgaagga	aactttggga	atctctgttt	60
acttggcagc	cataaacctg	ctcattgata	tttccccgga	tacaaagaat	ggtctcctat	120
gagaggatac	tatggtctcc	tacgagagat	actatggtct	cctatgagag	gatactatgg	180

cgtttttaaat	gagcttcata	gtgagttcgg	agcgacgcgt	atcaccgtcg	gggcgtcttt	300
tacgcgctgt	gctatgtcgc	gccctgtctg	ggcgtagatg	ctgaagagac	cattgctacc	360
atggctgtca	tgagggtggg	ctttgccaat	cgttcatcgt	tttctgtttt	tgtagctgt	420
tctatattta	gtcttcccca	ttttcaggaa	ggcaaaaatg	tacaggcata	tgccaatcg	480
gtaaccgtgt	cgggagagat	tggtctgccg	tcttttttga	aaccgatacg	gcaaaatctc	540
tttcccgaat	attcgaatc	gtcgaacag	ggagtggcgt	gatgcagagt	ctgccaaaag	600
ggctgtgaac	a					611

(2) INFORMATION FOR SEQ ID NO:1173

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 924 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...924

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1173

ggcctatgcc	gtccaattgc	ttgagactac	catagcggct	gcccataccg	cagccaaaac	60
aaaaagtgtg	ggtttcatcg	gtttctaaaa	actcttttta	tatgtaatgc	tgcaaagtta	120
cgattatcca	caaagggatc	agccgaactg	tacagggttt	catatctctg	cacagtttcg	180
gctgctatca	cttttcttag	gggatactcc	gaaatgctat	tccttattgc	ttgtgcaaaa	240
aaggaacagc	tgctatcacg	agcaacgtga	acggggccata	agtttgagct	tgtcaggatt	300
tgtttggtgt	tgaggctgca	tcgctcttct	gctgcacgca	aaagatttgc	agctttttgt	360
gatcaagaat	acggtagatg	tctgtcataa	gctattcgcc	aaaagggtta	aggatgaaag	420
gagtcattct	ctttttttcc	atctttttaga	gaacgcttac	gactgcttta	ttattgtatg	480
gaatatcgac	aagccgacat	gcccacatt	ttgcgcagat	tgatcagcgc	atatcgcatc	540
ggccgagtg	cgtattgatg	cttactccgg	tagcatctgc	aatctctcga	agctcatgtc	600
ctcccagtag	cgcatttcta	ctacttctctg	ctgcactcgg	gcaggacgct	caggtagtgt	660
tccagctctt	cgatagtagc	cagttcatca	gttgttcttc	cgccgtcaga	ttgcttgctc	720
gccacctttt	cgacagagcg	gcgtcgatcat	catcgaaaaga	ctgcaatctg	gctccttccc	780
ctctacccgg	cggtagtgat	ccatcacgag	gttggtgcga	aggcgtagca	gccagctttg	840
aacttgccgg	tggggatgta	ttgtccgcga	cgaagcgtat	gtcaccttg	ataaaagtgt	900
cctgaaaaat	atcctccgcc	gggg				924

(2) INFORMATION FOR SEQ ID NO:1174

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1345 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1127

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1171

```
gcttcgcagg agccgcccc aaggactat ttttcttgcg tgtacacaag      60
gacgaattgg aaatgcttct tgggtggagt cttattcgaa aatagggttc gagggacaaa      120
acaagacttt cctgatcagc atgaagtggc acagttccgc catcagcaac tgcacgggtga      180
tgagacgccc attttgtgct cgatgatata ttcgacaaac tggatgccac ccgtgtggag      240
cggatatccg ccttgtcggc ggtaacgggt tccgggcagat cttcatcaca gatagaatcg      300
gaaaaacttg gacgagatta tcgcttcttg gagtggaggat tacgcctttt caaaatagaa      360
aacggacaga tattccaata ataggatatc ttgatggaaa aaagcgaaat acagaaagtg      420
gatcaggtaa ttcgggcttg gtggaggatg aaccgctcat gtatgaacga cttctcgagg      480
tggaagcttt gaagctcttg ccacagggtg tggggcctct ctataaattc ctcggtcgtg      540
ccgattcatg acggcgctact gtacctgaca ttcaattcgt ccgttggtgc agccagctga      600
gcaacaacaa agcagagttg ctccctcaggc tgaatacgcc gtggatgcag aactgattcg      660
acaaatagtt ttcttatagg tctttgcgat ctccctcaat gactatcgaa aaaagggggg      720
gggagacttt aaccgaacgt gcggtttttt gcagacgac gcagtcgata atcttgatcc      780
tcttccatca agtgccagca ttcgctcgga aacgaatgta gaaagggtag gtaggcattg      840
cttactgtca tgttggaag agtagccagt tcctctcgac taggtagata cttagggtag      900
ctccatcatt ctcaaatccg aaattctctt tagtatcagt agcgtttcgg ccagtcggcc      960
acgaacatgt ttctgcgtga cgttacgggt cgcctttctg catagcccaa ctctttggcc      1020
aaaggcctta ggaagtatct acagaatgag gtgtttcctt tcagcaatgc ttcgatagtt      1080
cgaccgggat ggcaaggact ttggagtttc aacggcaatg gctgtg      1127
```

(2) INFORMATION FOR SEQ ID NO:1172

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 611 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...611

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1172

```
aagtcgctgc ccatgaagta gtctttcttg gccgaatgct ccactgatgg acgggtcttc      60
ttcatagcag gcaggtagag ccatttgtca tcctcttcc gatctgatca taatcccatg      120
tgaggaaacc ggtgcctttg acatcgccgg atagaggaaa aacataatag tcttcttgct      180
tttcttatcc ttaccctgtc aatggagtag gaaatgagtt tgcgctcacg tacggctcct      240
```

tatggcatag	gcattgataa	cgctgtcgat	aatggccagt	cgctgtcttc	cggcatggca	2220
gcaagagcaa	gaaggctgtc	ctgctcgtgc	acgacttggc	atgaccgacc	aattcatcga	2280
gccgggagga	aagttcggct	acggcttgta	gtcgggattg	agtctgttca	gtacaccgct	2340
tgcggcagag	aacaggctga	gctttcaggt	actgcttcct	ttgatataga	tgtcgccaaa	2400
caatctgcag						2410

(2) INFORMATION FOR SEQ ID NO:1170

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1240 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1240

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1170

gggcaacact	tccttcgcga	tctgagtatt	gcagagcgaa	tagccgacac	ctttccgagc	60
ataaagcatt	gcctgtactg	gagatcgggc	cgggtatgga	gtgcttacgc	agttcttact	120
tcgcaagggg	catgatgttc	gcgtcatgag	atcgacggtg	agtccgtcag	ctattttgcga	180
gaagagtttc	ccgaacttcc	gacgagatca	tagagggcga	ttttctgcac	tatcctttgt	240
cggagtgttc	cccgaggagc	gacaatactg	cctgataggc	aattatccct	acaaatctcc	300
agccagattt	tcttccgcct	gttggacggt	cgcgagcaga	ttcctgttgt	tcgggggatgc	360
tgcagcgcga	agtggctatg	cgacttgcac	cgctcccggg	aaaaaagatt	acggcatatt	420
gagcgtgtta	ttgcagcttt	gtacaatatc	gaataacctc	tcaccgtaga	cgcttccggt	480
ttcgaccccc	gccccaaagt	cagagcgggt	taatacgtct	gacacgcaat	gaccgcaaga	540
acttccatgt	agcgagaaaag	ccttgaaaac	agtggtgaaa	acagctttgg	acagcgtcgg	600
aaaacgctta	ggaactctct	tcgcgggtatc	ttgccggcgg	ttttgatcgt	ttcgacgaac	660
ccgtttttct	gaagcgaccg	gagcagtggt	tccggatgat	ttcatcgcac	ttacactcct	720
gttgcagcaa	tagcatttca	tccccctga	ttaacgaatt	cttatggact	tcacgaaaga	780
atatttcaca	atcttcgcga	gatcatcgac	caaaagcgcg	atgcagatgc	tctgacctga	840
tgagcaagct	ccaccccgag	gatattgcgg	ctctctatga	cggctggatc	tggacgaggc	900
tgtctacctc	tacctcctgc	tcgatggaga	aaggccggtc	tcgtactctt	ggagctggat	960
gaagatgagc	gaaacaaggt	ctcgaaaagga	ttccttccga	gaccatcgcc	ggaaaatttg	1020
tcggcaacag	gagaccgacg	atgcggccga	gctgattcgt	gagctggacg	aagaccagaa	1080
gacgagattc	tcagtcaggt	gaccgatata	gagcaggccg	gagatatatc	gatctgctca	1140
agtacgaaga	cgatacagcc	ggtagcctca	tgggtacgag	atgataatcg	tcaatgagaa	1200
ctggagtatg	cccaagtgtg	tcgaaagatg	cgtatgcagg			1240

(2) INFORMATION FOR SEQ ID NO:1171

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1127 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

tttcacctat ggtttgncaa gatgaagctc tgcccttggc ccgaaggaat gagccccgc

898

(2) INFORMATION FOR SEQ ID NO:1169

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2410 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2410

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1169

agtcataaga	agtactacac	atagatgata	ataatgcctt	aaggcttcaa	acgtttgaag	60
aataatagtt	tccttattgg	ggccctccgc	cggatttgct	tgtccggctt	tcttcttctg	120
ttcgcggttct	ttcgctcgtg	ccttacgtct	cgctcgcgtt	gacgaagttt	ctccttccgc	180
tcacgttctt	tttcttaagc	ttctgctcgc	gttccttttg	cttgagacgt	tgatccttaa	240
gcttgcgca	cgggcttttt	ctcgttcttt	ttcccgtgct	ttcaattctc	gtttcgatcg	300
cgctcctttt	ctcgcttggc	cttttcgagt	gctttctttt	cgtcttctca	ttttgtgcac	360
gctctttggc	cagccgctga	atctgctcta	ccagacgtct	ttgccttctt	gctgcttgag	420
cgatggcaaa	gcagctgcac	cgagatcgta	tcggctgcgg	aagaatcggc	tgccacaggc	480
ttggctccgg	gaggatctgc	tccctatcga	tgctgaaagt	aataggagta	gccgtcatat	540
gctgtccttg	tcgggtttga	tggagacaag	aggtttcctg	tctgtgccga	cgtactatcg	600
cgagcgggat	cctcggcctc	gttcttgctg	gacacgaagg	agccggagtg	ccagcaggct	660
ctatgtcctc	atcctctttg	ccgacacttg	cgctcgtccg	gtcatctgct	gccagcgatc	720
gaggacgaag	gccgttcggg	cacttcttct	tttgcgagga	aggatcatgta	ttgacctatg	780
ctttaccctt	gacaagcagc	tggttaattgc	tctccgatat	ggggaacaac	aggtgctttc	840
gcccacgcga	ctcataaatc	cgttcggagc	gaaagcatcc	ttatatactg	ccagccccatg	900
cgtgggggtcg	ggagagaggt	catcagccac	tatcgaatgc	tcccacgggtg	ctctgcacta	960
tttccagtggt	ttgctctgta	agcgagagaa	gttgaatgaa	gcaagagcaa	aaagtacctt	1020
gtttttatata	atgtaccggc	aggagcaaga	aggatcagac	gggtacgctc	gaaagattgg	1080
gattttacaaa	aggaggcaaa	gagtcggcgc	atatgctgtc	ggatatccaa	tgccccaccg	1140
aatatcccag	tcgatacccg	tatagccgcc	ctgtacatgg	aacggccgcg	gagcaactcg	1200
gtaagcatcg	aggaggccaa	ttcgggacgt	ctgctttcgg	ataatccttc	accaactgct	1260
tcagggcaga	ggtgagccct	tggagtctga	ctccagcaca	taacagagtg	cattgaggaa	1320
gtcaatttcg	gcgccagttc	cgataggggg	aatcgctcgc	ggcattcatt	tcgctctttc	1380
tgaccgaacc	gactactcct	ttgaggtagg	agtcgaacgc	tgcccgtaga	gttcgttctg	1440
gcgacgatcc	attgcgggcca	attccttcag	taatcgggat	tgctcagggc	ctttgccaga	1500
ttgtcttcgg	gatagtactt	aggatcaagg	cgcggcaacg	ttccgcttcc	ggcttggtgt	1560
tcattcgggtg	tagagcataa	agagacgata	gagcacatcc	atcttcttct	catagttggg	1620
tagcgacgaa	gcagggtctc	gtaagtgtca	gccgattcgt	cgaactctcc	atccgctcat	1680
tgaagaccgc	tcccattgcc	agcagacctt	ctgcattgag	ttgccggcag	cttccttggc	1740
atcttccgct	attggtaatt	gtgcagatag	tattcgcggg	tgagcggatt	ggaagttgcg	1800
gaatcggcag	ctgcgcctgt	agctcctctt	cggatcatcaa	agttccgggt	tgcgtctcat	1860
catctcttct	gcagtagaag	aatcgctcag	aggaatgtcg	aaattggcct	gttgcgtcta	1920
cgtctccaat	catcttccag	cacacgcttt	ccccatttgc	ttcgaaagcg	gctttgccct	1980
gcgctatcag	ttgaggatta	tagaaataga	ttcaccagaa	gctcctccca	tttgcattcc	2040
gggcggtgga	ttttgagttt	tccgccggca	gagggagcga	atccttccact	ctccgcattg	2100
aaaagctttg	gctctgctgg	agttttgccca	tctcctcctc	tfcgagtcgt	ttcttctctg	2160

atgtggattc	cagtttgggc	tgttccgccg	caatagtagc	atcgatattc	ccaattcata	60
accctgtgaa	cgcaccaatt	ccataacgcg	agccaacaga	tcttactatc	gatccccntt	120
atattgagga	tccgaaggag	gaaagtgtag	ccgatatcac	gcaaagcggc	agcaccacgc	180
agggcacac	aaatagatga	atgagcacat	cggcatcgga	atgtccctcc	aagcccttgg	240
aatgtccaga	cgaacaccgc	ccatccacaa	aggataacct	tcggacaagc	ggtgacatcg	300
aaaccgaatc	ctattcgaaa	aggcttcttc	atcttgattt	agtgaacaaa	ttgcgcaatc	360
catccatata	gaaagcaagc	gtaaaccgca	gatctgatcc	aacggattac	tctggatcgt	420
agacaacagg	taggaagcat	catacggaat	atgttcattt	tgaagccggc	accggccgtg	480
aagtactgca	attgcctttg	gtgggggtgca	ggtatgaata	tccggcacga	acaaaaaatt	540
atcgtcatag	ctatatccag	ccccaagttc	ccatgtaatc	tcacggaatc	ttccttgagt	600
cctcccggcg	catcaccgaa	agaagagaat	ataccgcgat	cgaagaagtt	tcctgatatt	660
tcttgagtgc	agcctcatac	ccggccgatc	gttttgatcc	atgataggag	gagtgggtac	720
aagcagcttg	ctaagtcaag	gttgaaattg	atgctgttat	agtcatcgat	cggatacaac	780
agcccgtccc	gagattcaac	gaagtaggga	tgaaaaaact	cgtgacacct	ccgcatagga	840
gatcttcgtt	ccgatattct	ttacgttgaa	acccaacgac	caaagctctc	cgcattaccc	900
agtagcacat	acttctgcaa	ataaccggct	aatccgccgc	aaaggcattt	ccggcctgat	960
tctctccggt	gttgtgagtg	tttggtctga	gcggatgtaa	cgcagtgcaa	cagccatgga	1020
gaagttctcg	acaactggcg	gctatagccc	aaatcgacag	caaattcatt	gggatgggct	1080
ctcccatgga	ttcgcccaat	tcgtcgaaag	tctccaactt	tcctaattga	aataacgcag	1140
agaagcacta	atagcctgat	tctcgtctgt	tcccaattgt	agaaaccggt	catctgcac	1200
agggcaatat	cattgaccag	cttggcagcc	aggggtgtata	tgagaagcta	ataccggctt	1260
tcgtatccat	gaaacatatt	tactcggatt	ccaatactgn	gaatacgc	ccgcgtcgtt	1320
gccacctat	atccccata	ccggccngna	cgtgcatccg	gactggatat	tcgcgatgg	1379

(2) INFORMATION FOR SEQ ID NO:1168

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 898 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...898

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1168

gtgctgatgg	tcattttctt	ccttgctgtc	ggtttggaga	tcaagcaggg	attttggtcg	60
gcgaattgtc	ttctttcaag	aaagctatgc	tccccattta	ggagccatag	gagggatgat	120
cgtccctgtc	cttttcttcc	tgctgggtgt	catgaaggcc	ctgggtgcaag	aggtgctgcc	180
atccctatgt	ctacggtata	gcttttgcct	tggcggccct	ggctgttttg	ggaagtcggg	240
ttccgcaagc	ctcaaggtat	tcctgacggc	tttggtctgt	gccgacgata	taggggtatt	300
atcgttattg	cgtcttcta	tagttcccat	atcaacatcg	ggagttggcc	attgccttcg	360
gtatcctatt	catcatgtat	ttgatggggc	gttgcatgtg	agcaacttag	ggctttactt	420
cgtctgtact	ttctttgttt	gctctttttc	ctacagaagc	ggtatccata	ccacaatagc	480
cgggtgtgctg	cagctttcat	gattccggcc	cgtcctggac	tacatgccaa	gaatcttcgg	540
ccgagatgcg	ttcccttttc	gaggcaatgc	ccaatgacaa	gatacgacat	caggtagctc	600
tctgatcttg	agccataacc	aaatcaacgt	aatcaaccca	tgcgtaagat	tgcgcgtaag	660
gctataagtc	ctatgcagct	catggagagt	atctcagccc	gatagtaggc	tacttcgtct	720
tgcctctctt	tgccttgcca	atgctggcat	cacgctcgga	ggagtcacgg	cagatgcctt	780
nggggcgtgc	ccgatggctt	gattcttggg	cttggtgtcg	gcaaaccttt	gggttacttt	840

(2) INFORMATION FOR SEQ ID NO:1166

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 790 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...790

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1166

tttccggtat	tctcgacggc	taccagtatg	tcgttcatcg	gtcgtcccat	cgggtgatcc	60
ccttggctat	catacgggca	gaaggggtag	ccctgtccga	caaagacgca	tggccgattc	120
tattttaccc	tcgtggatat	aatccttata	cgctccatga	acgaattgtc	ttctctgccg	180
gcagccctga	tctccacacc	ttgcgaacga	atatgtagat	ggccaagagc	gaaagagcag	240
ccaatcgatc	atgatccaac	cgcctttgag	agccagatcc	ataatggaca	gggtgcttct	300
gtcgggtgtg	taacggggagt	attgacggta	gcaagggagt	cgaaggagtc	cccgccgact	360
gaacggggaat	ttgcagaaag	ggaatgcttg	gatattcatt	ggattatcaa	tgtgattgtt	420
actgtttcga	ttttatttat	acgcaagttg	gtctcgatat	tgtctgatag	tctcctccag	480
ttccaaatag	gagcatcggc	aatcagtgcg	tggccgatgg	aaacttcgtc	caaataggga	540
gtcgttcggc	aaagtaacgg	aggttgtcca	gattcaaata	gtgtccggat	tgataccgag	600
accgagcgaa	tgagcgtgta	ccgaagcctt	gacataggct	gtacggcagc	agccatgtcc	660
ttatgatagg	cggctgcata	cggctcgtgt	aaaagctcta	tccggtctgt	acctgtcttg	720
gcagcccacg	agatatgtcc	aagtcggtat	tcgatgaaat	ttggaagtcc	tgatacccca	780
nggctggaac						790

(2) INFORMATION FOR SEQ ID NO:1167

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1379 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1379

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1167

(B) LOCATION 1...1158

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1164

tgccacaacg	accacggcca	acgccatggg	gccgagtttc	gtagaccg	aagcggcgag	60
atcatttgtg	cagatgtgat	ctgggtatcac	aatgtatttc	tctcgttcac	aactggcggt	120
tcgtacagac	gggagccgtg	gatccgctgt	tcgcaaggct	gtattcgacg	atgaagtgat	180
gcgcgaatcg	ctccgcatgt	ggcagctcac	gagatcggtc	acaccatcgg	cctgatgcac	240
aacatgggtgc	cagctactcg	ttcaccatcg	agaacctgcg	cgatccgcag	ttcaccaaaa	300
atacgggtacc	acaccgagta	tcatggacta	tgcccgcgcaac	aactttgtgg	cgcagcccgg	360
cgacttggag	cgtgggtgtac	gcctgacgcc	tcattcatcgg	tgtgtatgac	attcatgcc	420
tcaactgggc	ttatcgtctc	ggcccggagc	caaaacggct	gaagaggaaa	agccgacact	480
gaacgcttgg	tcgccgagaa	gaaagacgat	cccattgttta	ccttcggagc	acagcagttc	540
cctataccat	cgacccacg	gacagaccg	aggatctcag	taacgatcct	tccgtgccgg	600
cgacatgtcc	atcagcaacc	tgaagattat	cgccaagaca	tggacaaatg	gctcctcgaa	660
aaggaagctc	gctacgatga	tctgcggaca	tgcacggaca	gctcatgtcc	caatactacc	720
gccatgtgag	ccacacatgc	cctatatcgg	aggagtggaa	cacttcgaaa	tccgccaggg	780
cgaaagaata	cgctttcccg	tcgcttcac	acaaaagaca	agcaacgcaa	ggcatgaatt	840
ggctcctcaa	tcaggctcgc	acataccgcc	agtggctggc	cgaccggctt	tcctcaacaa	900
ggtagagcag	aactctggga	tgaccgacct	ctgggcaagg	ccatgggtggc	ggctctcttc	960
aaccccggtg	gcataggacg	atatacgaag	cagagcagtc	cggacaaccg	ggtgtgtaca	1020
agctcacggt	tacgccaacg	agctgatcga	tgccatcttc	aacgtgaagg	gcaatctgcc	1080
gatgccgatc	gttctattca	gaacctggcc	atcgacctca	tgtcggcata	gtggtcttct	1140
tccacgggaa	ggcaagaa					1158

(2) INFORMATION FOR SEQ ID NO:1165

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 651 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...651

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1165

tagaggatcc	ccatcaagtt	tggtctcttg	ttcgacgaag	acactaatca	gataataaca	60
gatagatatg	gaagacgaat	tgctgaactt	taattatagg	attccggttt	gcccgttatt	120
atcaaggtaa	tcggagtcgg	cggtgggtgtg	gcaatgctgt	caaaaacatg	taccacggca	180
aggtgcggga	tgtatcttcc	tcctgtgtaa	taccgatgtg	caggctctcg	accgaagcga	240
ggtactgac	ggctgggtact	cggccgtgag	gtgaccaacg	gtctgggtgc	cggtgccgtc	300
cggaaagtggc	acgacgagct	gcagaggcca	gcgaagccga	catcgcaaga	tattggatga	360
tggccatacc	cgtatggtct	tcgtaacggc	cgtatgggcg	gcggaacggg	taccggtgcg	420
gcccctgtca	tcggtcggat	acacgtgaac	tcaatatcct	cactgtcggc	atcggtacca	480
tcccattcgt	ttcgaaggca	agcgcaagat	tctgcaggca	ctcgaagggg	tggaggaaag	540
cgcaaacgt	agatgcctgc	tcgtgggtcaa	taatgaacgg	ctccgcatat	atacaagatc	600
tttaagcttc	gacaatgctt	tttgccaagg	cagacgaaca	ctgaccaacg	c	651

acccacggtg ccacatttga atatgagggtt ccgcccgatg ggtacgcttg ctgaccgata	600
ctgatggctg agtactgcag ggtatgagcc ggngagacca gcgagcctcc tgaaattcgc	660
gatagtccgg caggtaagtt ttgggggtggc accgagtatc tttccctgct ggaataccac	720
agccgagttg aacagttttc ttccacgcgc agcggcatcc ccactatcac catgacagtc	780
gtat	784

(2) INFORMATION FOR SEQ ID NO:1163

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 647 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...647

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1163

acatgacgta gtcaatatcc tccggcttca atccagcatc ttcgatagct ttgtcataac	60
cagcttggct cccaaccggt caggatgact tgccgtcagt gatatgcac ggctgaaaga	120
cctgttccca ccaattcggc atagatggag caccgcgttt aagagcatgt tccagttctt	180
cgagaactat acatgcgctc cttcacccat tacaaaccg tcacgactgg cactgaaggg	240
gcggcggcct cttgtggagc atcgttgcca gtggagagag cattcattgc attgaacctc	300
ccactccggc agcgcaaatc gacgcctcag agcctcctgc aatattacat tggctttgcc	360
taagcggatc agatggcaag catcgatcag agattggtag aggaagcgca tgcggatgcg	420
atggaatagt taggacatg gagccgtatt tgatcgagat ctggccggct gcaatatcgg	480
agatcatctt gggatgaaaa acggattgaa acgaggcccg ttctccggat tgtagtcgcc	540
acttcacttt cgaaagtcgt cagaccaccg attccggcag aaacgacatc cccacacgat	600
tcttgtccaa ttggtccaaa tcgaggccgg agtcctttaca ctctcat	647

(2) INFORMATION FOR SEQ ID NO:1164

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1158 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...566

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1161

ggccggtcgc	gccggtcggg	acggagagag	ggcttatgcc	gtcttactgc	aggggaggac	60
gacatattca	acctgaaaag	gcgagtgagc	aatgagttcc	tccacgtgaa	tacatcgcca	120
cggtgtacaa	tcggatttgc	aactaccgca	gataggagaa	ggagagggat	tcgagcgatc	180
tttcgacttc	gacatcatgc	tttttgccgg	aatttcagga	tgttcccaac	acaagtattg	240
gctgcattcg	cattcctgat	gtagccggga	tttgggagta	tcgggaggaa	aagagcgctc	300
gcgcctgaca	atacaggtgc	agcgcgacga	gctataccgc	atggaagcga	acaggcttcc	360
gacagcgtgc	tgactgccct	gatgaggaca	tagacgggtt	gtttgcggat	tatgtttcca	420
tagtggaag	cgaattggcc	gaaagacagg	gcttagcgtc	gatcagggtc	atcagcaact	480
cctgctttct	aacaaagccg	gcatagtga	ctatatcca	caaaagaatc	tgccacgaat	540
tattttctca	caagacgttg	aggatg				566

(2) INFORMATION FOR SEQ ID NO:1162

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 784 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...784

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1162

agcaggcggt	gcatgagccg	cacacttgga	tattgatcat	ctcgcgcgac	gctccttacg	60
atccttgtcc	tccggcatga	aggggttgcg	atccacacgc	gcggtcatcg	gaagagactc	120
ctgccggcta	cgtagtttga	agggcagtg	ttgaactttt	cgatcatggg	gtggaaggta	180
acggcagcct	tgaagcgcta	ttgataagcc	gctccgtctg	aatacgcgaa	acgtctatat	240
cgctgtgata	atccttttct	catagcggaa	tcgctccatc	tctccacga	tctccgggcc	300
tcggcaataa	aggcttttgc	ggtgaagacg	atatccgtgg	agcttcgccg	tatccgctgc	360
tgccatatac	ataagcacag	ataccctgtg	aaaaaggccg	ctgataagcg	atctcaagta	420
agaatgtttg	cctgcatttt	cttgctggag	gagagggtga	agatcacctc	tgctccataa	480
aggcagagac	tgtacccgga	gtgaaaggcg	tccacatata	ctcacaaatc	tctatgccgc	540

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...619

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1159

```
cttgtaatgt tactgttgcc ataactgata atgctgttag aaatatattta gactcattgt    60
aataatatct ttattcctaa aacaaggagt tcgtcttatg ttcacgtac acgaatcatg    120
ctcaaccctg cgcgcatcgg aactatcagt tctccacacg ttcacccagc aagaccattt    180
cggtgaagcg aaggatccct gtgtctggct atcggtcggg agaggctcgg ccaccacttt    240
accgtccaaa gcgtattatc ggccaggatg agtgctccgg gaggcagggtg gtcttgatca    300
tttcatagta aagggtgtat tgtctcttgt ctgcatccat ataatcagat cgaagcgttc    360
gttcttgacc aagtccggta gtagatccaa ggctcccaat atgtaatctg atcttaccct    420
caaaatccga tgcctccaga tgcggcggat gaagtcctcc atctcgtcgt cgcgctccag    480
tgtgtggagc gtccgtccgg agtcaatccc ctctgccaag cagagagagg catanccgga    540
taggtgccga tctccaagat ccggcgtggc ctcacatcat gagagatctc gacaaaaaac    600
gtccctgcag gtgtcccg
```

(2) INFORMATION FOR SEQ ID NO:1160

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 642 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...642

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1160

```
gagctcgcca aaaatttgta gaacctatct cttcatcaag gtactctatg gatttatcaa    60
ccaattcgct ttgaacatct ctctcaagcg atccgcatac ggctcgcttc tgtggagaat    120
actgtctgat tagcatatac tttgtttgca attgaactaa attagctgca gaatacatcc    180
ctttttccaa tagttctctg tttggattaa tgcattcatt ggctctaatt tttgtgatgg    240
gccgaatttt gataataagg ggctggaaat aaatttcctt cgcgcatagg cctgttatat    300
ataagtctcc aatctttctc gaaaaccgac acaaacgacc gcactttggg tcaatcgatc    360
aataggacaa agatcagaaa tcattatata tgactgatat tcacactcat ttctccaatc    420
tgtgtcaata tggcaacccc attgctcgat cattatccca agcgcttctc cctaattctaa    480
gaagcaattg gcttcctttt caattttatc tgttcagtat acctactatg ataaagtata    540
cttcttcttc atgaccgttc tccaaaaacc attgatagta tgcttggtgc tatcgacagt    600
atttgcgaaa ataatgcgac tacctctatc aaggcatatg gt
```

(2) INFORMATION FOR SEQ ID NO:1161

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 566 base pairs
- (B) TYPE: nucleic acid

ctgccacaag gatccgnttc tttcctttca atcccccgag gaaaattttg tttccgacgc	1260
agcggaaacg atccattctt ttgctaggaa ttggagtgtg tttgngagcg gacccttatg	1320
gtctgtcttg gcgggatgag c	1341

(2) INFORMATION FOR SEQ ID NO:1158

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1009 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1009

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1158

cggccgaggc tccgcatcta cgcccccttgc agaagagatt ggcagaagaa tcaccgttca	60
tggtacacag tcgtgaagcc tacgatgctg ctgtcgaacc agcgagatcc tctttggcaa	120
gagtacgaca gagcaattgc gcaagctgac gaggccactc tcctcgatgt ctttgccggt	180
gtgccgcagt atcatgggag cgcagcagga tagccacagg aatttcattg gtcgatttgc	240
tggccatgct accgatatat tcccgtccaa aggtgaattg cgcaagacgg tgaagccggc	300
ggagtgaacc tgaacaaaga gaaagtagcc gatgcggaac aaaggtagga gaggacgacc	360
tcttgtccga ccgctatctg ctggcgcaaa aagcaagaaa agctattacc tgatcatcgt	420
ggagtgaaca cacggatagc gattcatgaa actatccatc gttattgtca attatcgtgt	480
tccgtatttc tggaacagtg ccttctctcc gtgcgaaagt ctgccaagg gattgatacg	540
aagtgtgggt cgtagacaat aattcggggg atggttcggg agaatatctc aaagtcgttt	600
ccccgaagtt cattttgtag ctaacgagga gaatgtagtt tctctcgcgc caacaatcag	660
gctatccgtc tcagtaaggg gcaatagtag tcttgcgcaa tcccgatacc cttatcggag	720
agagtacgct gcgtaagtgg tggactttat ggattcgaag cctaatagcag gcggactggg	780
cgtaaaatgc tcaatgggtca tggccgcttt ttgccggaga gtaagcgagg gttccttctc	840
catgggtgtc tttctgtaag ttgtccgggc ttaaccggct cttcctcatt cgtctcgttt	900
caatcgctat cacctcagtt atctcagccg tacgaggtgc acaaagtaga ggtactgtcc	960
ggtgctttta tgctgatgag cgggaggcat tggataaggt cgggttgct	1009

(2) INFORMATION FOR SEQ ID NO:1159

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 619 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1156

ggcctgcccc	gctgcgacgg	acggcatcgg	ccacggcacg	gatggcttct	cctgaccgat	60
cacgcgcttg	tgcagctcgt	cctccagatg	aagcagctgt	cgcgctcgct	ctggagcatg	120
cggctgacgg	ggatacccg	ccagcgcaca	cgatgtcggc	tatgtcgtcg	gcctccactt	180
cctccttgat	catggaccgc	cacgctgcaa	ttcgtgcagc	tgctgctgta	tcgtgtcgat	240
ctccgctctt	tctgcttgat	gagtccgtag	cgtatctcgg	ccactcgtcc	gtaacgcctt	300
cccgttcggc	acgacgcggc	tgaacttca	gctcctctat	atcatcttga	gctgctgaat	360
ctgattgac	cgatcttttt	cgttctgcca	ttggctttct	ccgaggcctc	tttctccttg	420
agttcggcta	tttccctgtc	gggaactgta	ccttctcttc	gtcattctct	cgcttgatgg	480
cttcgcgttc	atctcaagtt	gcttgatcct	gcgcgagatc	tcgtccagct	cctccggcac	540
gaatccactt	ccatacgcag	acgagccgca	gcctcatcca	tcaggtcgtg	gccttgctcg	600
gcaggaaccg	ctccgtaatg	tagcgggtgcg	acaacttacg	gccgcaatga	tgcatcatc	660
cttgatccgc	actttgtggt	gattctgtat	ttctccttca	aaccccgagg	gatggagatg	720
gagcttagct	cgcccgctcg	tccaccatca	ccatctggaa	gcgtcgttcc	agagccttgt	780
cctttcgaag	tatttgcg					798

(2) INFORMATION FOR SEQ ID NO:1157

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1341 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1341

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1157

ccgatttttt	caaactctcc	gagactgaat	attttcttac	atgtgtcgcc	gatgaagctc	60
tctgtcggaa	gttggatgtc	gctgccaaga	gagccgatgc	ttgaatagaa	ctacatggat	120
aatagactat	aacagaacat	gtgcaccaac	acatttatac	ccccgatctt	tccggccgat	180
cctttcgcgc	ccataactac	cacgccatct	cgatatttgg	acaaacagca	tatatcccta	240
tgacgataag	taggaataac	tcctcttata	ctcctccaaa	ggcataaggc	accccacggt	300
tcggccacga	atcgtgcggg	tgccctcttt	atttcagctt	ccgaaggggc	tttttcggtc	360
ttcgatttat	atacaaatga	gtttcgatct	attataaatt	gaaaatgatt	tatatacaaa	420
tcgaaaacga	tctatatatt	ttcgtaaaca	gtttgtatat	agatcgttat	cttgtctccc	480
ataaaccata	tttgacctga	aaaagttcgt	ttcttcatat	tttcgacatc	aaaatccgtc	540
cctttcaggt	gcttattttag	aatcattcca	aattccgctt	cgttgttgaa	actaaaaaat	600
tttcaaacgc	gatcgtcctg	acaggctgcc	ccggggcgac	gcattaaatc	ggttttgcgg	660
cttcattcga	gcgagtttct	tctctgatac	gagggttgga	ggacttcata	ttggccttta	720
agggggaaac	gatatttggc	ggcggtaact	gacgtgtact	aaatggctgt	ctgacacaca	780
taaatgaatg	aacaaaagtg	cctgcttatt	gtgcaaagg	cccattaatt	cgtcttgttt	840
gataattgga	tgtagcaatc	atgagcttta	gatgtacgtt	agggctgaaa	tgcgattgcc	900
ctgtggaata	tgcattctgc	tatatctgaa	agtgttattt	ttttatcttt	gtgcggactt	960
tgttcagagc	tgcttttttc	tattgggatc	gggtggtgat	attaaaaggg	aatcgggtga	1020
aaatccccgac	agtcgccgtg	ctgtgaacct	tgtaaagctt	tcggcattta	tatccacttc	1080
cgttctgtgc	ggatgggaag	gagtcggaaa	gtatgggggtg	aagccagaga	cctgcaaagt	1140
ccttctgtgc	ggcttcgagg	aaaagccggg	agagaagcac	ttgtggtcaa	tccgacttta	1200

gtctgccgag	ctgtcgtatc	cggcaatcgt	tccaattgga	gcagcaacac	tctttgaggt	1680
ctctggcaca	gataccgggg	ggatcgagac	tttgtccaat	cctatcactt	cttctacttc	1740
ctttttgtcc	gcctcgatac	cggccggaaa	gcgagatcgt	ccagaatctc	ctccaaatca	1800
cgatgcaggt	agcatcttct	tctatgttac	caatgatata	gggagcaagc		1850

(2) INFORMATION FOR SEQ ID NO:1155

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 608 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...608

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1155

ggcattcgac	cggctggatt	tgccccgtaa	gaacatcatt	gccgttacgt	gccgggggttc	60
ggaacttccg	atcgtactta	tcggaacgcc	tttgtcttat	ggaggccatc	ggcgtgacga	120
tcaaagagat	agacatcaag	gaggctttct	ccgacacttc	gaagccatag	gacataatcc	180
ggaggtgcag	gatacgctt	cgagaatacg	caagctcgcg	agcgaacaca	aatactgatg	240
aatctgcca	tatatacaac	gctccagtta	taggtacggg	tgatctgtcc	gaacggctct	300
cggatgggta	acgtacaatg	gcgatcatat	gtccatgtat	gcctcaatgc	agggatagcc	360
aagactacgg	tacagattct	cgtcgatcat	atgcgcatag	cggctggctg	gatgaggcag	420
cttcggctgt	tttgtgggac	acgtccgtac	tcccatcaag	tcccgaactc	aagcctgtgg	480
gacaggatgg	aatatcagcc	agaagacgga	agatctggtc	gggccatacg	aattgcacgc	540
ttcttcatt	accatttcct	cacaatgaat	acaagccctc	gaagatctct	accttgccgg	600
tgtagctt						608

(2) INFORMATION FOR SEQ ID NO:1156

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 798 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...798

tcctgttatg	cgttcctaaa	aacgtggctc	gagaaaaattt	cgtttttggtt	cggggaagaaa	120
ataattctcg	cgccaaagcg	aaaaaaaagtc	gcgcgtgttt	tccggaaaaac	gtggcccggga	180
attttcgatg	attccgttcg	taaaagagga	agtgtcaaaa	ttcagtttag	agtaaaggat	240
actatatattg	tataggaaaa	ccgctaccaa	atggacaaaa	tcatacctact	tgatgcgggt	300
tttcctttat	gattaagggtg	gcatttgtgt	ctttttgata	gttgaaaatc	cttttttcgg	360
attttgacac	agcccccttg	tatatccgag	gacgaagaaa	cccgtactct	ttagttggtc	420
ttcatcaggc	gttccagacg	ggcagttgat	agtcgtagaa	cgagcggtcg	gcagcgttgc	480
ccgtggcctt	cgattgcgat	agatggctctg	cacgcgcttg	agttgttgca	gtaggagggg	540
caatcacttc	attcggggcc	tgcttgagaa	aggccgtaag	acggaagagg	aatcggctcc	600
gtcc						604

(2) INFORMATION FOR SEQ ID NO:1154

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1850 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1850

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1154

ggagaacgga	tgaagcgatg	gtggaagagg	gaaaaatccc	aaaaggataa	gcagaataat	60
gactcttctt	tccgtaccgt	ctctatgccg	acagatat	ctccttcaaa	caattcgaca	120
tcgaccagac	aggttgtgcc	atgcgcgggg	taccgacggc	gtcctgctgg	gagcatgggc	180
cggagaggat	gcagccgaag	tattccgcag	cattgcctgg	acataggtag	gggcacaggg	240
ctgatgcctt	aatgttggca	cagcgattcc	cacaggcccg	ggtgcaggga	atagaataga	300
tcctatcgct	gccgaatgtg	ctcgcgcaaa	cgcgcgtgcc	tctctttttc	cgatcgaata	360
gtgatcgctt	cgggagacat	tttggattca	tcctcgaaaag	ccttatcgga	aatcaacgtt	420
tcgatctgat	cgtctcgaat	cgcctttctt	caagtcttcc	atgcatgccc	ccgacagaca	480
gcgcaccatg	cacgacatga	agaaaccctg	ccgttggaaa	aactgatatg	ccgtgcctcg	540
aattactctc	tccacaaggg	cgattggcac	tcattacgcc	tcgcgaccgc	tgaaggattt	600
acgtctgtat	gcagctacct	atcgtttggg	ttcatctgcc	tgacggaagt	gcgtacccta	660
ccccataaag	aacctaaacg	ccttctagcg	aatggcgacc	tgccgatact	gctatcgacc	720
gatcgccatt	caccgtaccc	tcatacatac	tcctgccaca	ggctactatt	caccttgagt	780
acgtcgtctg	acagagcctt	tctatacgac	tttctttccg	catcctcggc	tgtggataac	840
cgaagctgtc	ccgatacttg	gcaacgggtac	gacgagccag	tcataaccgt	tttcggccaa	900
aacatcagcc	aactcgggat	cattcagggg	aatctcttat	cctcggagtc	gatggcttcg	960
gcaagcactc	gtttgacctc	cgtgtggaca	cttctctctc	cttatcggtg	acagtgccat	1020
cactgaaaag	tgcttcagcg	agaagattcc	gaagtcggtc	tgtacatatt	tgctattgtc	1080
acccgagaga	tcgtactgac	atcataaacc	gtcggatcag	ccacatcttc	agaatcatag	1140
gcttcagatc	ggcaagttct	ccacttcgga	agtaagatcc	tgtagccgta	ctatggcctc	1200
cctcgtccgc	tgtagcgttt	cccgtgctga	cgaagggttc	cgatgaacca	ttgagcttga	1260
tccactttct	gcttacgaaa	agaagtgttt	gtttgcgttc	gcgtgagcgg	tttttagcag	1320
agcttgataa	tcntgcatca	tctcctgata	gaccggactg	acgcgcaagg	gcgaatatca	1380
cgaccacgag	taagcgacac	gaccagatcg	tcctccatgc	gtcgacgatg	aaatcgggat	1440
gtaccctgtt	catggctgct	tcggcgatcat	tcctccatccg	ttagcgggtt	tgggatttag	1500
ctgcatgatc	agttcgaagc	ctccttcatt	tcggaatcgg	aaaaggaatg	gttccttctt	1560
gcaactgccc	aaccgttttg	agacaaaagtc	gtcataatgg	tttgtaagaa	tatggaggct	1620

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1189

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1152

actggcgacg	cagaaattcc	acggagtcgt	ccgtgnagcc	attatcgggt	acgataagac	60
gagccgattg	tgcggtgta	tgtgctataa	gagagggaga	actcntccag	catcttacgt	120
ccgttccagt	tgagaatgat	gactgcattg	tcatagttgt	cgggtattat	gcaatcgggg	180
acgtttccag	cggcggggct	ccaaagccat	tgcgacggat	cgcgacggat	ggtggtctcc	240
atcagcggac	atattcttcc	gtaatgcttc	cttcggggct	gtcatcctga	ggatgtgcaa	300
gagcttgatg	gtaccgggtga	agacatcgtg	ccccgttttc	tcccatccat	gtagactacc	360
ggcagagaga	acttacggcc	gagcttctcc	gtccattgaa	gaaagccgtt	tctctgccga	420
agaaggtagt	ccagtatgag	cggcataggc	cggactttgg	tcggcgatga	agatgactag	480
tggagtctct	tcggaatagg	attgcgaacg	agtcggagca	gttcacgtgg	cacgtcgtgt	540
tggctatacc	acgcgaaccg	aatcgctccc	gtatgcgatg	catgagccgt	cggaagaagt	600
acttttcaac	gggcgaaaga	tctgatagat	ctgtaggcca	aatctttgat	gatggcctga	660
ctgccggaaa	agtactccca	gttgccaaat	gccccatcat	caggagaatg	gcagggtgcc	720
cttcggctcg	taagcgatca	ggacatcgag	attttcgaat	gagatgtggc	ggcggagttg	780
cgccgtgaat	aagtcagaag	cttgaaggaa	ctcaagattt	gatacgtgaa	atttagtaaa	840
atcgacgttc	gatccggcgt	atttcttgta	aagattttctc	gggaaacagc	gagtcagatt	900
gtcacgtacc	acctttctcc	gatagcgaac	gcggtatgca	gcagccctgc	caggatacga	960
ctctgcaacc	gcaccatcca	agcggtagca	ctgcctgcat	atacgtcagg	cctaacagca	1020
aataatagga	agggaaagtg	tcgctttcat	gggaatatgg	tatcggctgt	ctgcacattt	1080
ctccgcttgg	atcgggtttg	cccaatacga	tctcttccac	tttaccaccc	gagtctgcgg	1140
catagggagc	cgctcgcgga	tgtagtctnc	gtaaaacctg	catcagacc		1189

(2) INFORMATION FOR SEQ ID NO:1153

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 604 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...604

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1153

cgcaaaagaa	attctcggaa	cagtaggtgg	ctgccccgat	attcttttgt	tccaaaattt	60
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gtttgcagtg	ttaaagtaga	acctacagat	aggttttctg	ttgttgtcac	taaaaggacg	60
ctaaagtaag	actgagtgtc	tcttgaggca	atacgggtcat	attgatatat	ttccggagaa	120
ttcctttttac	aatcatatat	gcttccactc	tgcttcggtc	gttacaacaa	gagggttcatt	180
agaatcatct	tgctctgtga	ttgctcctca	ctcgcagcga	cttctttact	tttatccatt	240
accgnttaaa	tcgagcagta	atcaaatacat	taataacaga	tttgaaagac	ttcttgtaag	300
atccttgaat	tgttcaaaaa	tctttgctgt	aataattcgc	tcaaaacttg	gtttgcgagc	360
attcctacca	actgntcaga	gggctcattc	atttctgcaa	gtatcaaaat	ctttcaactc	420
tttcatatac	cttaaggtca	cagccagtac	cttagaatct	tatcaacca		469

(2) INFORMATION FOR SEQ ID NO:1151

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1168 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1168

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1151

gtggagggtg	tcaagctctc	ggcaaagaag	gtggcaggcg	tagtcgttcc	gtactcgatg	60
acattttctta	cacgatcaag	cctttcagtt	tgttcaatcc	ccgtcatggt	ttgccgaagg	120
cattgacctg	ctgaagaact	tggcccaacc	ggaatcgagg	ccgagttcct	cggctctgaag	180
ttggagttcc	tcgaattgca	cgcaagaaga	ctacacagaa	agtgaatcct	tttgagaaaag	240
tgcaatcccc	ggctacaaaag	acgccatacg	caagatcaaa	cgctatcttg	aggagaagag	300
agttttgtcca	aatcctctca	gaagattatg	cgagccaata	tgggaaacgt	aacaaaggag	360
aggaggtgat	ggcatgatta	ccgcaatgaa	caataccttt	tcctgatcta	tcaccgtgag	420
tacgaagctt	tcttggaaaa	gtgcgtacga	tcggggtggt	acacatccgg	gaaaccaagg	480
ctacgaaaga	gtggcgggaat	tgcaagatct	cctcaatttg	cgtaaagaga	ttgcccgagac	540
aagcgcattgc	tcgcttcgta	caaaagcgag	gatgctcccg	ccgaacagcc	ctgacacttg	600
cgtccgaagc	tgacggagaa	gctgccatgc	aggatgccag	gctcttttctg	ccgaagagac	660
ccgtcttaaa	ggcgcgatcc	tgtctaaaag	cgggagggtg	agcacatgga	agtttggggg	720
cagttcgact	ttgcaccatc	gaaagactcc	ggaaagccgg	ctatgaagtg	aatttctatt	780
cgtctcctct	tcggcttaca	aacctgagtg	ggaagaaaag	ttcggagcag	tggtatcaat	840
accgtacgct	ccactgttca	tttcgtcacc	atagggcata	aaaggatgcc	agaccgatg	900
ccgagcgaat	caaaactacc	gattacgatc	tgctacgctc	cgtaaccaac	aggaagagct	960
ggaagctcta	ttggaagcga	tgcgaaggac	aaaacttcat	ttgccgacaa	tcgtatggct	1020
gaactcacgc	ctatgacaac	ctcctgtcgg	acaaattcgc	attcaccagt	gccatggtca	1080
agccgaagga	caagccgatg	acaaactgat	gcttctcgaa	ggctggggacc	cgtgtcagaa	1140
gcttcgacta	tggagcaggc	attggccg				1168

(2) INFORMATION FOR SEQ ID NO:1152

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1189 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(2) INFORMATION FOR SEQ ID NO:223

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1149 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1149

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:223

ttcgaaagggt	ctgaccctaa	tgaatgcaaa	gaacgccgtt	gggtatgtgt	gtgaagctga	60
ctcgtgcagc	tcgtgggtgca	gccgtgaaga	aacagtaaaa	aaacgtacaa	gaagcaagcc	120
ggagcttcga	tcgaagttcc	ggctttccat	aacgaaggag	agccgccccct	gataccccctg	180
aagtggggca	acggagcggc	tcttccatat	tcgagagtc	tatttttagtc	gtagcgtatg	240
aaatactgat	cgtcggcctt	ggcaatatcg	gcggagagta	caacggcact	cgcctaattgt	300
gggtttccgg	atgggtgaatg	ctctggccga	agacggtgga	gtgagttcgt	ggaagctcgt	360
tacggagcga	tagcgcgtat	gcgtgtgaag	aagcggagct	gatacctgctg	aaaccaaata	420
catatatgaa	tctgagtggc	atgccgttcg	ctactggatg	caacaggaga	atatccctcg	480
cgaacagggtg	ttgtccttgt	ggacgatttg	gctttgcctt	tcggcacttt	gcggctgaac	540
ccaaggggaag	cgatgcgggg	cataacgggc	tgaagaacat	tgccgagggg	tgggatcgat	600
cgattatgcc	cgtctgcgtt	tcggcctggg	cgacgagttt	ccaaaggaag	gcagggtggac	660
ttcgtcctcg	gccgttttac	ccccgagaag	aggagaagct	gccggagctg	accaagcatg	720
ccgtggagat	catcagagtt	tttgcctggc	cggtatccaa	aggacgatga	accggtacaa	780
ctaaggagat	ggaagaggta	aggatagacc	gttggatgtg	ggctacgcgt	atctcaagac	840
acgaacgata	gccacggatg	cctgcaagaa	aagccgagta	acgtgaacgg	gctgcaagcc	900
aagccttcgc	gtatggtacg	tgtgggcgac	gcattcaggt	aaggaagcca	ccggtgacct	960
attcctttcg	tattctggct	tggctcagaa	tcggatgggt	gccaagctgg	tgaaggactt	1020
tctggaaaaa	tactccgcc	cgaagagtat	gagatactcg	aaatgcaacg	catttcggct	1080
ttgtggacag	agccaaaggg	cacccggtcg	tccgaccaa	aaaggacggc	cgaagaagct	1140
tggagccag						1149

(2) INFORMATION FOR SEQ ID NO:224

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 826 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...874

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:221

```
gatccccctcg gcatnnnnnn acagtagcag ccaacaatac caatgaggaa aacccgctcg      60
aatgaaaccg caaaaccaat ttaatgcgtc ggccccgggg cagcctgtca gggcgatcgc      120
gtttgaaaat ttttagtctc tttcctcatg atttgaatct ctggcatatg gattcgcact      180
tgttttgata attgaagtag caatcgttag gtttataagt gtgttgacag ttcaaagtgcg      240
attgcctgta tccgagaaat aatgcagcaa ctatctctcg gaaaaagcac taccttgtag      300
tcattccaat ttaattacgt agtaatcaag cagcaaattg cgttgatgga aaagggtatc      360
cgcagagctc tcatatcggt ctatcataaa gaggtttggc cgagatactg gccgaattga      420
acagacaagg ggtagagttc gatccacagg aggaactcat gaatttatca cttcgctcgg      480
ttatgcgtgt gggccgtgga tgatctgacg cgttatcctt cgatgctcgg gggacgggta      540
agacattaca cccaatgata ttcggcggtg ttttggtcgc tcgcggtctg aaagcgatgt      600
gcgagaagta ggcgagtacg ggttacctct tatcgattgg tcatcgtgga tctatatcca      660
ttcgaggcca ccgtggcatc aggagctcgg aagaagatat cattgagaag atagatatag      720
gcggtatctc tctcatagag gagctgccaa aaacttcgaa gatgtcgtta tcatctcgtc      780
acggcacagt atgccggatt ttacagcctg ctgaaagagc agggagctcg aactctttgg      840
ctgaacgggg gatcctnaag agtcgagtgc atga      874
```

(2) INFORMATION FOR SEQ ID NO:222

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 654 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...654

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:222

```
cagactgatac agtaccatc cccaaaaaga atgccggaag aagaaataaa acattgaaag      60
gatttggcac tacccaattt gctcgaataa tcgagcttta ccacatacga tcgtaaaaat      120
ccgattggag cattctgatt ttctcctttc ttccgattgg caaaactcct cctccgatag      180
atagatcttt cccaacccca tcgttctgct tgccgattga gcgtatcggt catgatcgga      240
tgcaagcttt catcttctga tacaatcccg ccacatgccg gtacaaaaccg aatacctcgg      300
aaatagcttc acaagcgaaa aactcaggac atacaatact gctcgcataa aagagcataa      360
acgattgtag actccagacc taagggaata tcacaggcag cgagagatgt aaagaggaga      420
agatgattct aaagaccacg agaaggcaat gccgggcaaa ataatggcaa ggaagtcata      480
aagagaaaaa tttccataaa gtatcatccg tatttaataa aagaataaga tagaagtaag      540
attccccctt tcttttagtg tcgtagtctt attcaggaag cgcaaattag tcatattcgt      600
ccgcttttca atggaataac ccgccatctt tttccgtttc caagcattac cgag      654
```

gaatttttggc	atgcgcggaa	gaaagccgct	acgagaaaat	acctttcccc	caactnctcg	540
tacgcttttt	atggacagga	tcatggactt	ggtgatggtc	ggacttatac	attgagtatc	600
atgatgggct	ttcaagggtt	tttctcgcgt	tttttcgctg	caatccacaa	ctgacacaag	660
gctttttcac	cattttcagt	tccatcggct	atacgttggt	gttgtaggta	tcgggctact	720
tttcttcttg	ctctaaaata	cctctcacac	gtaggcccc	ttcgcaaagt	agcagcactc	780
atcgtaggat	actggagggg	cttcgggtcta	tctggcatat	ggagcacaag	tggctttcat	840
cttatattcc	atcctcttgt	gggtaggata	tttcttttac	tttacaccac	attccttgct	900
ttcgacttta	cacgatcggt	ggggatggga	gggggttgat	cagcttcgcc	atgagcagca	960
tagccgtagc	cgtacccgta	agggggggcgt	agggccgtgg	cacttcatgg	ttattgctac	1020
tcttggtggc	tcggcgtgac	gaaagaagat	gccggagcgt	ttgccttggt	ggtacacaga	1080
ctcaaacctg	ttggactacg	gccgccgggt	tcgtggctat	cggcttggtc	cttttgtaa	1140
taagaaatac	gatcgcataa	aacagtcaaa	caattacaac	aatcatccaa	aacacttttc	1200
acagttatgt	caacagagat	caaaacctca	aaccacaagc	tgtctgggag	tacttctacg	1260
acctgacaca	aatacccgac	ctaccggaca	gatggacgag	gtgaccaagt	acgtattcga	1320
cttggttaaga	ggcttgggtt	tggagaccga	gcaggacgag	gtgggcaatg	tctcattcgc	1380
aaagcc						1386

(2) INFORMATION FOR SEQ ID NO:220

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 305 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...305

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:220

ttgcttcaat	gcttcatatt	gagacatctc	ttgattatag	ctcattttga	cacaatgttg	60
tatttgatcat	ctgcatcaac	acttgacatc	accatagggc	gtgagacgta	atgataaact	120
ggagcctggg	gaatgcctta	cgaagtcctt	gagaattgat	gcttgcaggc	gaggggtgtag	180
atgaaggtct	atttcacgat	gagtactgtc	ccctcggact	tgagagctga	atcagattga	240
tataagtctg	attgagcaag	gcgcatctga	aagccaaatc	tacgactatg	ctgacactcg	300
gcgtt						305

(2) INFORMATION FOR SEQ ID NO:221

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 874 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1262

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:218

cgggccaaagc	ccgaggagcc	gaacatctcc	tcaccttcc	cctgacgcgc	agatccaccg	60
aagtcttgat	cacgttgat	gccttcttcg	atgtaatcgc	gcatatacca	ttacgatacc	120
ggcagccacg	aggaaatata	cgggagtgaa	gccggttcgt	tcaaggctcc	catcagataa	180
gtatcgtagt	gcccgttccg	ttggcattga	agtccanata	agaggaataa	ccggncagcg	240
gcacacgata	aagttcacca	agtcgttgcc	ggcaaaaagcc	atcgccaaaag	cgaagtaccc	300
aagaggacga	tcaccttgaa	gacattgacc	cgtagccaat	acacacctgc	atcaggataa	360
tggaaacgac	cagacagtac	aataccagcc	tgccgtattg	gcagctatcc	aagccgtgga	420
ttcttcggtc	ataaaggaca	ccccttcagc	cctttgatga	gcatgaaata	aatgatggat	480
gtaaccgcaa	tccgccgaaa	aggccggcca	gccatcggag	attccgcctg	taattaaagt	540
aaagagcaaa	cggctcagat	actgaacgac	catcccgaag	aagaaagcat	tcccaccgaa	600
aggaagatac	ccaatatgac	ggaaagagct	ttctccgatt	gagaagatcc	tgaaagccga	660
ccgtaccgcc	caccttggtc	atggcctaaa	aaaagaaccg	cctaacagct	cgaaaatgag	720
cgagacggtc	gtagagtagg	catgccgagc	gaattgaaca	tatccatcag	gacgacatcg	780
gtgacaccac	cgacagaaat	acgaccatca	attcgctgaa	agtgtaatgt	tccgcctgaa	840
aatcccgtgt	cgggcgatct	ccatcatgcc	gttggttcatt	gcgcgccaca	aaaaaccccc	900
aacgctgcca	caccgacgat	gatcttgaat	gagcagcctt	ggctccgatg	gcagaattga	960
ggaagttgac	cgcatcgttg	tgacaccac	aatcaagtcg	aatatagcaa	ggatgaaaag	1020
aaatacgaca	tggcggtaaa	gataagactc	cattaaatct	atgttatgag	gttagactca	1080
caaaaaaatt	cggcgaatac	ctttctctct	ctgtctcccg	gcaacgatcg	gactctcaac	1140
tgggcaagag	caagggttcgc	ctatccgaca	catcttcttt	gcacacacaa	aaatagcgca	1200
attcttaaga	acgcaaaaag	cccgtacggg	ggcttctccg	ccttgtcaga	tcccggcttt	1260
gt						1262

(2) INFORMATION FOR SEQ ID NO:219

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1386 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1386

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:219

cgcttttact	cgcatcatga	aatataaatt	ctttataatt	gcgttggttg	aaaatgctaa	60
ggtacgatat	tttgattggt	attttaatgg	gatcgtacaa	gggtaattcta	aatagcaaaa	120
tgatttgta	agataagagc	aactaaagac	taataatata	gggcaagaaa	taatgcccgc	180
ggataagtct	gacagaggaa	atcagtagct	aaggtcatta	ttcctctcgc	cataggcggt	240
ctgctcttct	gggtgggtgt	accgcaaaaat	ggatttctcc	gccattggca	agatgtccgc	300
gacggtgtca	attactacat	catagctttc	tctctcttgt	tcgattggcc	gccaaactgta	360
tacgcggcct	gcgctggcaa	ctcctcatag	aactttggct	tctcctcatc	cacggaaaat	420
caatgccatt	ctgactactt	tggcaattac	acggtcaata	tggtctctgcc	ccgtgcccga	480

ttgagaggat	tcaaacggaa	aaagcgcaaa	gaacgacttg	gtatgcagtc	gtccgcgaag	540
tggttttctt	tgcttctatg	tcccgatata	tggttcccga	tgataaatta	attgagagag	600
tgccaaagtt	agaaaatata	ttcagacgat	cgaactcttt	tccgacctgt	ataagattaa	660
cgattttata	ttatggaaac	gcttgtagac	ccggtggata	aagaggggca	tgaagtttcc	720
catggcaagt	tttctcaaga	gcttcagggc	gatggcggca	caggcttctg	catctgccag	780
ggctgggtgt	gttgtgccaa	tgtgtatcca	cagcattggg	ctacgggtggg	cagcgatgat	840
cgctgaggtg	tcgcagttgg	cggcgtgctg	cctggagcgt	gcgaagaatg	ggtagtcggg	900
gtagtccatt	cggtacatcc	tgaataccgc	ctgaggcaac	cttcgt		946

(2) INFORMATION FOR SEQ ID NO:217

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 641 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...641

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:217

cggcgatttc	ctaaatatac	gataaattat	agagtttttc	tacatagttt	catttaatatag	60
ccagtgccta	aaattctggt	aagttttttt	tgtgttgga	gcacttttgt	attaaaaatt	120
aaagcaattt	ctccatcagg	acaaaaccaa	tggatttatg	tagaaatggt	aaaaccatct	180
ctttgccaaa	attatatatga	cacaatagtc	cattatcgat	tttgacaatt	tcttagtccc	240
aaaagtgggt	tccaataaac	caaattcacc	ttttcaaaat	catcaggatt	cactccccaa	300
tagtatcccg	acaccacaga	ttttttcctt	ttttttcttt	aatgaaatat	cgttaggatt	360
atctatcaaa	taagggaatt	tattggtttt	gttatccaga	gtttcttggg	gttaagatgc	420
tcaactaatg	ccaaatatag	gtgaaagctg	ttactttaat	agctaattgga	tctatttcga	480
ttccaaagat	ttttttacca	agtatatcat	taagttcttt	gaaggttatg	accttctctg	540
attttatatt	tccatntcct	aataagtctt	ttataacttt	cgactaagaa	attccagaac	600
cacaagccgg	atctaaaatt	taccatggga	atttgggtcat	t		641

(2) INFORMATION FOR SEQ ID NO:218

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1262 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(A) NAME/KEY: misc_feature
(B) LOCATION 1...1426

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:215

gggccaaagg	ttgcgaat	ttt	gccgtactcg	tctctctgct	ggagccggaa	acgagttgta	60
caacggcggg	attgtggata	tg	tgcctacag	at	at	at	120
tttttcattc	cgatgataac	cctc	cctgtgc	agacgtccaa	aaagggctctg	gagtacagac	180
agcagcttgc	catcgccaga	aaca	atccat	cgatgtttcg	aatttcgaga	gtcagctcga	240
agatttcggg	aaagattcgg	taaaa	actat	cgccttgcca	gcgaacgatt	caaacggcta	300
tcgacgagat	agacaagtcc	ata	cagcact	tgaataaaaat	caagaagcct	tggtcggcag	360
cgagtacaac	ctccgccttg	cgaac	gacaa	gg	tgaaagccc	tcaccatcaa	420
cgaggcaatc	ccacgatgaa	acaaa	gttcg	aagaagccc	cctcgccgaa	gaatgacgca	480
ctccgggata	aatgccaacc	gtac	atctcc	atgtgtatta	taacaatttt	gcgcaaagca	540
tctgagggtg	actaataaaa	tg	tcagtcaa	agaatagata	ttgacagagc	gaaacggatg	600
ccggcgaagc	gacagagaaa	aaag	taatgc	cggatggaag	ctgccttcgt	atcgaagata	660
cggcgggtg	gtcagagaaa	cagat	cgacg	gg	taaaactac	cctctccaga	720
gagccggagc	cgaaggccgg	cacgg	ctg	at	cctg	cgat	780
tgtgtggata	gcttgcccgt	cccc	acatgg	aagagcgtgc	cgactatggc	acgaccatat	840
tgcgcaggaa	tctgtccgcc	gt	gatggaaa	agacccattg	acgggtctgtg	caagtggcat	900
ccatcgggct	tccgttatac	gg	cagttgtt	cttttgacgt	cggtatgcag	tttgctgaag	960
ctcgtgaagt	cgatatatcg	gga	agaagag	ccgccgcttc	attcatgcgt	ccgaagtcga	1020
gcttacgatg	gtcttcagca	tca	agccttc	cataaaaagga	tctttctgct	cggtcagaag	1080
tagtggttaag	ttcgggagat	gg	catcgaag	cgcgcgtggg	catcggttg	acaggagcca	1140
ttcggtatat	gacgatgtcg	cgt	gggagga	gtttatgagc	ctttctgtca	gggtggcagc	1200
ttccgcccgc	gtatcgccag	ga	agacggca	tgtgctacca	tctcgtgggc	atgaactcct	1260
gcacgtggtc	gtccgctccg	ac	gacccga	cagggttg	gcg	cacgatggta	1320
ccttacggtc	tgctgcacac	cgg	gggcatt	aggctgcgtt	tgccagccgc	tgagcgagt	1380
ccgttgtatg	ccagatagat	ga	agaagcgc	gccattttatt	attctt		1426

(2) INFORMATION FOR SEQ ID NO:216

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 946 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...946

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:216

tcacgcattt	cg	tttttttt	ttg	tttggtt	aagtgaatta	tggtgattat	ctcgnnttgt	60
tctttttctt	gag	ccatgac	gat	gtgcaac	cacggggaaa	tctcccggga	ggtaccacga	120
aggccgaaag	gct	ttagatt	tga	aggggaa	atgcctccc	at	acgaagcg	180
atactataaa	gcc	ctggggg	ttata	actata	aagggtggag	gcttttaaag	tataaagtgc	240
ggagattgat	att	tg	caggt	cttcggcgg	tttg	ttcagg	tg	300
tgatgctccg	aaa	agagata	tg	agtgggca	aaaccgatac	gctcgagact	tcccgatgga	360
ggccttg	cag	agg	ttg	taac	aggctgttg	tcgcctttta	caa	420
gt	aaaatg	taaa	taggggaggg					480
gt	aaaatg	ccc	ttt	attcggc	atccgacagc	tgctacgggg	ctatcgtcag	
							tagtaaggat	

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1411

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:214

ggcgagcagttg	tcgggtaatg	ctttgggnacg	tttcaggaag	cgattccgga	aggttcctcc	60
gaaggcgatt	ccggcggttg	aaacaccaac	ggagcattac	gaaacaacct	aaaacaacga	120
acagctaaca	ccttacttta	tggaattaaa	tcattgaaaa	atatcgaaac	atcgttccgg	180
cagatccggc	tttatgcatt	gcctttgtcg	tactctgcct	cattatcacg	ggctatgccg	240
tttttcatcc	tattcctttg	cagaaaaaca	gcgggagaaa	gtctatgtgc	tggaaacgga	300
aagtcgctta	tgctcgctct	cagccaggat	gccaaagcca	acctcccgtg	gaagcccgcg	360
agcacgtcag	gcgttttcac	gaactcttct	ttcgattgcg	ccggacaagg	cggccatcga	420
agggaatgtc	aaacgcgctt	tatgctggcc	gacaaaacgg	cctacaatta	ctacaaagac	480
ctgatggaaa	aggatattac	agccggatga	tttcaggcaa	tatccaccag	cgtatcgagt	540
cgactccatc	cggtgcgatt	tcgaggccta	tccttatcgg	gtcaggacta	cgcccggcag	600
tttatcgctc	gccagagcaa	catcacggag	cggtcgctat	caccgaatgc	agcctgatca	660
attccggttcg	ttcggacaac	aatccgaggg	tttcctgttg	gaacgtttta	ccgtgctgca	720
aaatcaggac	attcaaccgt	gaaacgantg	aaacggttct	atctgaaaat	acacctcggc	780
ctaagcggca	atgtgaccgt	ttaagcccc	tgcaacgaaa	aatcgcggtg	ttcggctgag	840
cctgatttat	ctgtgctgtt	cgctcggtat	gattgtccgg	tttttgctcc	gtccgattac	900
agaccggttg	aagaaaaaag	attccgcgag	cgatcgacag	tcccgttcgc	acggacagcc	960
ttcggccgga	gcgacttccg	aaaagcatta	cgccaaaaat	taccttaata	cgatcgaata	1020
tgaacaatga	aaacatccga	aacatccgca	tcccgttttt	ccggagaccc	cgggaaagga	1080
gcggacaaag	aagagaaaga	aaaaagagaa	cagtccgaaa	agaagaagaa	cagcttaaaa	1140
aactgcttgt	cttcgccgga	ttaggcatcc	tcttcggatt	tccttatggc	tgatcttctc	1200
tccttcggcc	gaagagcgac	aaaagaagag	aggacagcag	gtcttaacga	aaccgttccg	1260
caagccaccg	acgggaactg	cccgcagata	aactgaaagg	ctatgaactg	gggcgcgatg	1320
aagaaaggaa	tcccaccggc	aggagaccct	cggcaacctc	tacgactatt	tcagaagaaa	1380
gacgaaacac	gggagcagga	aatctcggaa	g			1411

(2) INFORMATION FOR SEQ ID NO:215

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1426 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...669

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:212

```
tgccgagaaa tctcgggtcg ctgtacgctt tcaagttcag ccaattcggc aaaattttat    60
cgtacccttc ctgtgtaata taattgtatg ccatactgct tgtatgtaac gttgggttgaa    120
aaaaaaaaattt ttcttcgggc tgcacctaca gccattctcg tccaaagaga aaaaagaagc    180
ccggaagata ccataatat ggaatgtctc cggaactctc tactctttct ttaagtcggt    240
tgagcacttt acgctcgggtg caaagatagt aatctttctt ataagagcga ctttggttctt    300
cggacgacca ggggtgcaaat tccagcaata agtgcaacac tatgtgaatt ctgtagaag    360
cactcgaacg gagtgccgaa tccgagtttc ttccgggtct gtggttcagt ttattctgta    420
taatgagacc ttgacacggc attggcgtgc aaaggctctt ttccagggtg atttgaggga    480
aaaaaattga ggctccagcc ggttctccat cagcttttac ctccaccact gtttcttttg    540
agcaaaaaaga aaggagacag ctgcttccct aaggcttgct tccgccttgc gcagaatggg    600
gtagggcgag acggtgcagt cgaccaccgt ggtctgtcga acgggatgat tcttccgtcg    660
agtaccatt
```

(2) INFORMATION FOR SEQ ID NO:213

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 515 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...515

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:213

```
ggctacgata ggtagcgtgg gcaactctga ccatgctctg gaaaaatcgg aaaggccggt    60
cgttctcgct ggttgggtcg cagacctcac aaccgagggt ggtgatgaac cctgtggatc    120
accccatggg tgggtggtgaa ggtcgccgctc aggagggtcat ccccgttcac gcaagggtt    180
gtatgctaag ggcttgagac aagagctccg aagaagcatt cttctaagta catcattgag    240
agaagaaaaa gtaatctgat ttaatcaaag aaaattatga gtcgttctact taagaagggtc    300
catatattaa tctcaagctg gaaaagaagg tcttggcgat gaagagagcg gcaagaaagc    360
tgtcattaag acgtgggctc gtgcctcaat gattctcccg acttcgtggg acataccatt    420
gcagtgcata acggaaataa atttattcct ggttttggtg cccgaaaaca tgggtggggca    480
taagttaggg aagttctttt ctacacgtac ttttc
```

(2) INFORMATION FOR SEQ ID NO:214

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1411 base pairs

(B) TYPE: nucleic acid

ccatggcgga gaggaaatcc agtagagcgc gatgcgcatg gtgggcttga gggctgtttc 960
cggcaaattc ttgtacagca cagcagatt 989

(2) INFORMATION FOR SEQ ID NO:211

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1093 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1093

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:211

aacaggggagc	caagcgtttg	cgggccctct	tcttctctga	ccacgaggaa	tgccacgggc	60
tggtaatat	gtgccgaagg	agctatgcgt	ccggcttcag	gatggccatc	aacttctctt	120
cctccacagg	acgatcgata	aacttgctac	agatctgcgc	gtgcggaaga	aatcttctat	180
caaacgaaaa	tcttgagaat	ctgtttcatt	atatctcttt	ctctatttta	tagttgtttc	240
tgtccaagcc	tgacggctga	tcatctcacc	gacaaatccg	gttaggaaca	gttggtgccg	300
ataatcatcg	ccgtcagcgc	gatgaagaaa	taaggccgat	ccgcaccaaa	ggtgccctgcg	360
tatgcatgat	tatagcggac	aacttattga	caggacaacg	gccaaagcta	tgaagccgat	420
taggaacatg	cctgaaccga	gagcccgaag	aagtgcacgc	gcttgcgctc	gaacttgctg	480
ataaaccaaa	cgtaagcaaa	tcgagatagc	cattgaaaaa	acggctgata	ccgaacttgt	540
cgagccgcat	ttacgcgcct	gatgctgtac	taccttctcc	ccgatgcgcc	gaaaccggcg	600
gatttgGCCA	aatatggaat	gtaacgggtgc	atatcgtgta	caactcgata	ttctccacta	660
cctcgtgtcg	gtatgctttc	aaaccaaaatt	aaaatcgtgt	agcttgatgc	cggacagctt	720
tcgggctgta	gcattaaaag	ctttgagggc	agattccttg	tgaacagagg	atcgtaccgc	780
ttaccttcca	accgcttacc	aagtcatatc	ccccttctgt	caccatccgg	tacgctccgg	840
gatctcatcc	ggactatcct	gcaaatccgc	atccatcggt	atactacctg	cccctgtgtg	900
cgggcaaaac	cacattggag	accggccgac	tgccgtagtt	gcggcggaat	ttgatccctt	960
tgacctcggg	atgctctgct	gcaaacgttc	gatcacactt	caggagccgt	cggctacttc	1020
atcatctaca	agatgacctc	ataggaatag	ccatgctcat	tcattacacg	cctgatccag	1080
caaaaagttc	ggg					1093

(2) INFORMATION FOR SEQ ID NO:212

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 669 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

ggcgctcagat	gtccgatgga	gctttctact	tatttccgat	caatgcagcc	aatacaggac	120
agttcgaacg	aacgctgata	gttgccgtga	ggattctttat	gtgagctatc	ttgaaggctg	180
tacggctccc	cagcggatga	aaatcaactt	catgctgcaa	tcgtggagat	cattgccgag	240
accaagcgga	agtcaagtat	tctacggtag	agaattggta	tcccggagac	aaaggggtaa	300
aggcggtatc	tacaacttcg	tgaccaagcg	agggtgtctgc	aaagcgacaa	ttcaaaaaata	360
tcttggacgc	aggctgagac	aggttctgcc	atacatggaa	atatcccagc	tgtgtcctgc	420
gtggcgacaa	ttcgatagcg	ggttttactc	cgttgctgtt	accaataatt	tccagcaggc	480
agatacgggt	cgaagatgat	ccatctcggc	aaaaataccc	gtagccgtat	cgtatcgaag	540
gtatatcggc	cggttcaagt	cagaacagct	accgaggatt	ggccaagact	ccaagaatgc	600
ggtcaatgct	cgtaaccatt	cgcaatgcga	cagtctatgc	ttagcgatca	ctgcggtgct	660
catacatacc	cttatgcgga	tgtccaaacg	atacggctat	catcgagcat	gaagctacga	720
catccaagat	cagtgagagc	agatattcta	ctgcaaccaa	agaggaatcg	gtacggaaga	780
ggcctagggc	tgatcgtcaa	cggttatgcc	aaagaagtga	tgaataaact	gctatggaat	840
ttgccgtaga	ggcacagaaa	ctacttagta	tctctctcga	agatcggtgg	gataaagatc	900
tctgcaatca	tttcaaaata	aaaaacactc	agtatgctta	agataaagaa	cctccacgcc	960
acagtacagg	gcaaagagat	ttgaaaggaa	tcaatctgga	gatcaatgcc	ggagagattc	1020
atgctatcag	gggccgaacg	gatcggggaa	aagtacgctc	tcttccgttt	tggtagggaat	1080
ccctcctttg	aagtcacgga	aggagagggtg	acattcaatg	gaatcgactg	ctcgaactcg	1140
aaccggaaga	acgtgcacac	ctcggactct	ttctcatttc	caatatccgg	tcgagatccc	1200
ggcgctcagc	atggtgaatt	tcatggggca	gctgtcaatg	aacataggaa	agcgatcgga	1260
gcagaacccg	tatcgcaagc	gacttcctca	agatgatgcg	agagaagcgt	gccattgtgg	1320
agcggacaac	aaattggccc	agccgttctt	gtgaacgaag	gcttctccgg	tgagaaa	1377

(2) INFORMATION FOR SEQ ID NO:210

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 989 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...989

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:210

gttcgaggta	gcagaggtag	tgtcccggca	cgcagtgcac	caggaagaag	taaggccgaa	60
gatcagcacc	atcagttttc	cactcatagg	caccaccaa	gcatatagcc	tacaagtatg	120
ccgaatatgg	agctgtatth	gagcaactta	ccttggtgca	gaatccggtg	atggccgttg	180
cgattcctat	gagaatagta	caagggggaag	aatagccaac	gggaaacgat	aagccagtat	240
gctcatgccg	taacattcag	tccgatgggt	atccatgtcg	tgtctataaa	tcggctatct	300
gtgtacgtgc	atgtgcttct	ttctgtctct	tcctattaca	aatatggtea	ggccccctcc	360
tactatcggg	atcagcatcc	acagataatt	ggtcgataac	cgatatgggg	gtaaacgaaa	420
aggatcagca	gactcgtggc	aaagtgcagt	atccccatat	caggctgggg	atgcctgtct	480
cgcggatcag	cgttttcgtg	tctgttcgag	catcttctcg	atcatctgta	cgctctcttg	540
ggtgtgaagct	gtttttcttc	catttttttg	ctatccgtta	gtgggttcgat	tccatttgaa	600
aatgtctccg	caaggcattt	cttaccgctt	ccgatgcaat	ataaattagt	ttacagtata	660
aaccaaaatat	aaatgaaaga	atthtttcgag	agagggagaa	gattaaggaa	ggcgagagaa	720
tatttttacgc	cggcgatata	aaattggaag	acgatggaat	aaggcttcat	cgggtgcaggg	780
gataaagccg	aggagaagat	tctcggaaac	ggaagcggag	aagtccggtc	gcaacgacgg	840
aagtgcgcac	gtgcacgaac	aacagcctgc	atatggcgga	attgccggtg	agcaagaaaa	900

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1144

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:208

gcgaaacat	tcccgacttt	catatatgga	gttcaggctc	ggccaattaa	cgatgcctta	60
aagactgatc	cgggtgggacg	cgctgaggaa	gttcgttata	catcgatgaa	atagaaaagc	120
gagcagagga	aatgtgcaag	gcggaactct	gcacgtgag	ggaaaactgc	ccaaacgggt	180
atgccactgc	gacacgaggt	aaacaacatg	cttttcgacg	aagacggaca	tgtactttgc	240
gtcatgacct	cgacaccgtg	atgccgaact	ttattttctc	cgactatggc	gacttctccg	300
taccggagcc	aacaccggcg	aagaggacga	caaagacctt	gacatgtaaa	cttcgacatg	360
gaaatcttca	aggcctttac	cgaaggatac	ctaagggggc	aagctctttc	ctcaccgacg	420
tcgaaataga	gaatctccc	tcgccgcagc	actattttcc	tatatgcagt	gtgtgcgctt	480
cctgacggac	acatcaatgg	cgatacgtat	tataagatca	agtaccccga	acacaatctg	540
tacgcactcg	tgcacaattc	aggctgctac	agagtgtaga	ggactgcagc	tgcagatgca	600
agctttttatc	gaccaatgtc	ttaggtatta	agctcttacg	tgtaccaatg	tcagctacag	660
acacactttt	ctaaagacaa	gaagaccac	cgactttagt	ggctcttcgc	acaatccttg	720
cggatacgat	gaagcggact	taaagtcgct	taacgttcaa	gtttttgata	taaaagttaa	780
tcataaagat	tatgaactca	ctacttgcca	tccacaaact	ttattaaaga	gaacgagaga	840
aatgcaatcg	gcattttctc	cgttttgcaa	agacgacgta	ctctccggtt	aggacgacct	900
tccgtccgtt	taggtcgacc	taatcgctct	gaaggacgac	ctatttgctc	cgcaaggtcg	960
acctaaacgc	tcggttaggt	gacctgactt	cttgtcaggg	tcgacgtatg	cggttttattc	1020
ccttgtagtt	gcggacgaga	aggggggtac	gaactggaaa	acaacccttt	ataaatcacc	1080
gtttttcaaa	ggtctcatgc	tgtggagaag	agactgggtga	taagtattcc	tctccgatgg	1140
atgg						1144

(2) INFORMATION FOR SEQ ID NO:209

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1377 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1377

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:209

cttctttgca	gctctcaact	ctgccgtatt	tagcgacggc	tcctttgtga	tatccccaaa	60
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(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...643

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:206

agccatttca	ctgtgtccga	tcgcttcgag	acagcgtgcg	gcttcgcaag	atgactgcgt	60
tcatacagct	cgtgtggata	gtacggggct	gagacagtga	cagccaaaga	aaacgatgct	120
gaagagcagc	caaccaaacg	ggcgacttcc	ccacatatcc	aagggtataat	cattcaaggg	180
aagggcagtg	tcgggggttg	cagcagccgg	gctttcaggt	ttgagcggat	gcgtgtcggg	240
gataggaggg	ttttttcagg	acagaatata	aagtcctgtt	cgctctttgt	cagcaggccg	300
gcaggagacc	caaatcgcg	atcatgcttc	gtactacggg	tggggtacgt	agggtcttct	360
ccctatgatc	tccggtacca	tctcgtgacc	gggttgaaga	gcaagaggcg	cggatgcttt	420
atttcgctcc	gaagtcggcc	gtatctccat	ccagtcgaca	gtattccatt	tatatatagg	480
ggttggtaat	cgatgagtag	agagccaatg	ctctgcacgc	tctatgaggt	cgaagatcgt	540
gcgtttttat	ctgtacgagc	ganaagggtt	ttgcattttt	tctttcgacc	cagctgatag	600
ccgtcatgct	atccgaatag	ggtggggggg	ggtttttttt	ttt		643

(2) INFORMATION FOR SEQ ID NO:207

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 646 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...646

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:207

gggcgtttta	tcagattgta	caactataaa	atcangacat	cattatgaat	ctacagaaaa	60
gaaagaactg	tcccacttcc	gtttgaagtt	ggaaacttcc	tcaacgagca	ttttcccgaa	120
atgtcgggaa	acaatccatt	cattacacac	ggtcggatga	agcgctgact	gcctactgtg	180
atgccgtggc	acaaggttct	ctcatcccga	agccgagagt	atggcaagcg	aagtcctgta	240
tcaaggctgc	atttctcccc	atacgatacc	cttgtttccg	tcttgagcgc	ggagtcgagc	300
aggaactgcc	gtcacctctt	cccgaagac	tcgctccgat	actctaaaaa	acaaggcgat	360
acaaagcgta	tttgccaagt	atgaccttac	agcgactttg	aggcaagtcc	ggaatacgaa	420
catctctaca	ccgaactgac	agcacgatag	tcctccttat	cgaaagcaat	cacctgccta	480
caataggcgg	gggaacgata	ccgtataatc	acccaacatc	ggaagcgttt	cagtatcaaa	540
gccaaagatat	gtactccgct	tcacacgaca	agggacaagc	tcttgctctg	gtcgcgcact	600
atcttggtcca	cgctcttgaa	actctaaaat	gctttgaatg	gatata		646

(2) INFORMATION FOR SEQ ID NO:208

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1144 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(2) INFORMATION FOR SEQ ID NO:205

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1039 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1039

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:205

gccaacgctc	ggaaaacatg	ggcgatccca	gtaccactac	agccaaggcg	catctgccag	60
aaaacgggag	ccatgctgct	tcacagget	tagcattca	gcttatcacg	gtcttcacc	120
agtatatacc	gggtctgttg	cctgttctgc	cggacggagc	gcgcagtgcc	gctgtcatca	180
gagcctgcac	gtcctcggca	aaagctgctc	ttcggagaat	tgtcggatag	agcggcgatt	240
ttctataact	ctgcaaatga	tttcatatag	acaaagatac	acaaatagcc	ctctggctat	300
cttttcatct	acacgagaaa	tagcagcaag	gcagtatgcc	ggtttcctcc	tgcagtacgc	360
ccgatcaaac	ccgatggact	ccactcataa	aagactcgat	cacaaacaag	aaaaagtcca	420
tttatgatcc	ccaaaaaatg	tgcgcgagaa	aatttcactt	ttggagtcct	ttgaaaaaaa	480
ttattgacaa	ccctcatttt	ttcagagggn	tctatatcgg	ttttactcgt	cgcggttcgt	540
tgttttcttt	ccggccggga	aaagtttccc	cgacagccga	caaaaatatt	tttccggccg	600
gaaaagctct	atccaaagcc	ttcggatatg	tatccaaagc	tttgtacaca	tatacgaaag	660
ctttgtttat	atatccgaaa	cctttgataa	agaattggat	tatggctttt	tcaacttttc	720
cgtactgcag	aaaaactttt	tccggccggg	aacgattatt	tntttttatt	gctgtgacct	780
gtgtgtggat	actacctccc	acaaacgagt	gttccggtaa	agtatccgcc	tcccaaaggc	840
atcagtgcag	caccgaatcc	tttcgcatct	gtgcataaac	ctccgggcaa	acaccctttc	900
gagtatgcat	acagaggtgc	aggaatatgg	ttgtcgttgc	gggtgggttag	atztatcttt	960
gccgcaaaaag	aaatccttat	aatatgngnt	acaaagtttt	tttgtcgctc	tgcatagggt	1020
tagccctgat	gcaagcgca					1039

(2) INFORMATION FOR SEQ ID NO:206

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 643 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 463 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...463
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:203

ggccgtctcg	gacagctttc	ctgttcctgg	caacggactt	tgccacgctt	gcgccgagta	60
gtccgctccg	catacttttc	ctttcgctct	tgtcagaagt	tggcgatgtt	ttgcccgccg	120
ccgcaaccga	tgctcgagaat	atcctcccac	cggacggtcg	gatacattcg	tcgatgcacc	180
agagagccat	tttatttggc	cgtagtctcat	ccccgcaagc	atcatttttc	cccagaaatt	240
gttttaggtc	tgcggcaatt	gcttatgaac	ttcttgaaca	gtctcatctt	ctatcagcag	300
ctaaaagaac	aagaaataac	gaggagtctt	ggccttgat	tcgggtattc	ctctccgtag	360
gtctcctcac	aatagcgttc	ttctcccagt	ataggaaatg	tgtggcaatg	atgaagggta	420
tcatgacgag	tagcatccac	acgaggcgga	agcgatacaa	acg		463

(2) INFORMATION FOR SEQ ID NO:204

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 451 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...451
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:204

ttggggattc	acattacccc	tgctgcggtc	gaagtccgta	gcgtgtacag	aaccacgagc	60
ggcttccttg	taaccgtttt	ggcatgtatg	ccggccggta	ggtgagccag	tcgtgggagt	120
ggatcacgtc	gcacggtatg	gtacgcgtat	cacgcctgct	acgatggagt	aattattgat	180
ctcttcacag	agattgccgg	atagcgtccg	gaaaattcga	tacagccgag	ggcatccgnc	240
ttcttttagct	aaaatcggca	taaatgttgc	tgcgcgatc	ctcgtatgtc	cggaatccat	300
tcggttgccc	aagagttggg	tcacccgttt	nggtggggac	attttgtata	ctatgggagt	360
gcaagttggt	gcctatgagt	cggaggaaac	tctgtcctcg	tctccccacg	gtttgggaat	420
ggacgaaagt	aatatccatg	tgggctgcat	g			451

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...674

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:201

tccccgggaa atccctcttt tcagtatgca acactccgga aataatcgcg cgatatagtt	60
gctcttgccc gttccctcac cacccgtaat gcagaacaat tgctgtaggt tcccaaagga	120
acgtcgttca cggaaataac cgttttgaac gatcgggcgg attgttataa ttgatttcac	180
acgaacttaa aagcatatgg tttgtgtata taattgttcc aaatggtcgg atatcagctt	240
cctgaatctt ctgtgctgtt tcccagcttg aagtaatcgg agatatcttt ctctgtttgt	300
tcccggataa aggcaattcg atccgctgta atttatgggt agaaaacgtt cgcaccagcg	360
tgtagaggct tttatgcccc ttctgtccat atgtacaaaa agaaaatatg cctgaacctt	420
cgtgcaagca tttcgatgac gattcttcga tattgcctgt ctccactgtt aaacagatgg	480
catggaatcc tgagaggcaa gggataatac atctttctct cctcccgtga tgaaaagtaa	540
tctctcttt gcggaagtgt ctccatcccc aacacatagg tttccggcat attccccgt	600
aaacgaaccg gcattgactg aaaggacgat atatcttaca tagtctttgc gcaggaagcc	660
gaagatcggc tctt	674

(2) INFORMATION FOR SEQ ID NO:202

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 634 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...634

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:202

cgaggaggggc tgaatctctc caccaccatt tccacgagct gcgtaaaggt gcaatcaccg	60
cgataaagat gatcagtgag aggaagctca gatccactcg gcatattggg atccgagcca	120
agaaagagca cggccttga aaatatattc tgtaacagat agttgatggg caagggtgcag	180
accaagatga aagtcaggca gctccgagtc cgatagagggt cttcacattc ttggaaacgg	240
ccaagaagaa cacattccca agtagtaggc aaaaaccata ttgnccacga atatgagcgg	300
acaaacatac ttatgtaatc cataattgat actgtcttaa ttgttatcag gcgtgtccta	360
cttagttctc ttgcaaatcc ttgttacggg cagatgtacc cagatgacaa ctgccacggg	420
gatcagagcc atnggcggca aatcatcaga ccgttattga cataaccgga ttcgtagaag	480
ctcttgggaa gacttttata tccagcaatg taccggagcc cgagcaattc gcggaagaag	540
cgatcataac caaaacccat cctatcccag accggttccg atccatcggg aatgacttcc	600
aaggacgatt gggcaaggca aaagccttca aacg	634

(2) INFORMATION FOR SEQ ID NO:203

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:199

ctcagaaata	tccgtctacc	atcgtccagt	atatcagctc	tcaggtagtc	cgagtgtctca	60
agacatggca	aatgcagaag	tggagatgca	gaagggtacca	ccgagatgca	acagcaaagc	120
gatgtggaag	ctcttgcccg	caactatcgg	acaagttcgt	atctccttct	ttcctgactt	180
cggcggaact	cgatcgatga	acctcggcgt	aagcattacc	gaatttatca	agactgcgac	240
accggcgaag	tcaatatccc	gatgttggag	aataaccact	attctttggt	aaagtgggtgg	300
ctaaaaagtc	cggattcgaa	tcgctcaatg	tggcaatcat	tgcttggtgact	ccgccaatct	360
gtctaaggcc	gacagccttt	gcaacgcctt	gatgaggggg	gcgacttcgc	tgctgcagct	420
cgcacgttca	gcgcagatcc	tcctctcgtg	agacaggcgg	tgtactcacg	ttccccaacc	480
agtttacaca	atgcccggt	tagcacttat	taccagaagg	ctatgggctc	agcagcttga	540
nccttcgaca	cctctttttt	agcggttcca	tcgaa			575

(2) INFORMATION FOR SEQ ID NO:200

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 522 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...522

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:200

ggattcgctg	ccggctgccg	acaaagcctt	gctgctcatg	ttctattcga	tgacttgctg	60
gttcgggata	tagcggaagt	gaccggtatg	tcggagtcaa	cgtgaaggtc	aagctccacc	120
gacttcgcac	caaactctat	aaaatgagag	aaaatgaaac	agaatataga	agacaaaaag	180
ctcaaaagac	tgttccacag	ttacccaaac	agccggctcg	gactcaaaca	acgcttcgac	240
gtgatcgtgc	cgtacgagag	gaagctgctc	ggcgcgaacg	gcgtgcccac	cgctcgttcg	300
catcgccatg	gtgggagtat	gtgtccttgc	ggtggttgtc	ttctagtatt	agactccaag	360
ggattgttta	gcggctctga	tttcgatagc	ttgttcaaga	ccgatctttc	cgcaatccct	420
tcgtcggttt	gggcagcgat	aagccggagc	acctctgatc	ttcctgtccg	tggtcatcct	480
cttcgggcta	tcctctacga	actatatcgc	aacacgaagc	at		522

(2) INFORMATION FOR SEQ ID NO:201

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 674 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

ttggaaatga tccgtagttg ggttattgtt cgggtattag agaactattc gcgctacttc	780
gacgcccgtg acgcgggcga acgtcctttc tgtctgttgg attattttccc ggagattttcc	840
tgttggtcat agacgaaagc catgtaacga tac	873

(2) INFORMATION FOR SEQ ID NO:198

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 697 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...697

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:198

ctgacatccg ctcgaaccat ggacacctcg tctatgataa tcagatcgaa cttcggatca	60
gtttcttgtg ttcgttcgtg tagcgaaaca catcgaaccc cgtctgtcac gagtactcaa	120
atcgggatcg ttcggcgga tccggcgaga ggcagtttga aaaacgagtg gagcgtctgc	180
cctccgacat tcagtgcgca agnccggta ggcgcaagca cgacaaactt cttatgcgtc	240
gtagccagat atgccgaagc agtgtggact taccggttcc ggccctgccc gtcagaagag	300
gctttggtct gtgcgttcga tcaggctgag cacatagccc atccctcatt ggcaaggctc	360
attgcggaca ggccctcctc tctctttttt gtttgcgacg aggcattgcgc tcagggggcgt	420
ttgtatcggg ctttgacttt cgcttgcccg gtttgctctc gttgtggaag cgatctacgg	480
ccgtcaccca taagtataat cggctgaagc atgggaagtc gggaaggcga atgctgtttc	540
gggagtaatc acccaaattgt tttcagcttt gntggatcgt ttcttcatcc atgacggaag	600
gcatagacca cgaagtagga agctttgaca gggtcggatc atcctttcag cagccnaatc	660
aggtgaaaac tgatggcaac caagcggatg cagcctt	697

(2) INFORMATION FOR SEQ ID NO:199

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 575 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...575

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...726

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:196

cgtggacgta	gctctcctct	cgggaggtat	atacgaagcc	ttggtaacgc	tgtaggcggt	60
ctcgttgctg	gtatcgtaac	gctttttgcc	tacaactact	cgtagctcag	gtggataagg	120
tcgtcaataa	gatggaaacc	aagactctga	gtttatggat	ctccttaacg	aacccatcaa	180
aaaatgagtc	tgaactaaa	accaaggtca	cagaagtgtt	tagcatggct	tctatgaccg	240
acgtgttttc	ctgctgctca	tcttcttcat	ggtgaccagt	acgctcatcg	taccaatgcg	300
ctacgcgtat	ctcttccctc	tgccaataaa	cagcctgccc	ccgagctcct	ttggcacgga	360
tcaccatttc	agaagatatg	cgctatttcg	cccttttggt	caggacaaag	ggcatgaggt	420
cgctttcgag	gagatacttc	cctcttgctt	caggagcaaa	gtcgcaatcc	cgaaatgtac	480
gtagccatat	tgccgacgag	aatgtcccgt	atcgtgagat	cgtgaagggt	ttgagtatgc	540
cggggagaac	aagatgaaa	tggtgttggc	caccaaagcc	caaagtaaaa	gtaagtccat	600
gcaacaagag	aaagtcaaac	gccaatgccg	tgccataccc	gtatcgggtg	ggggcacatg	660
tcgcactgat	caccctcttg	tcgtgcgcac	cttcgtgctg	gttcgcgccg	aagaaccgga	720
agaact						726

(2) INFORMATION FOR SEQ ID NO:197

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 873 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...873

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:197

ccccggcggc	ggtcaatcgt	ccgacccttg	tcctgagtca	caacaagact	tggcagcaca	60
gctatacgga	gagttcaaa	ccttcttccc	cgagaatggg	tgagtatatt	cgtcagctac	120
tacgactact	atcagcccga	ggcctactcc	ccgtcacaga	cacctatata	gaaaaggaca	180
tggccatcaa	cgcggaatcg	aaaaactgcg	attgagggcc	acggcttcgc	tcctgtcagg	240
gcggaagatg	tgcttggtg	cagctccgta	tcctgtctct	acggtatggc	caatctgaag	300
ctttttccga	aaaggtgatc	agcctgcaca	cgggacaaag	ggcgacaggg	atcatTTTTAT	360
ccgcctgctg	gtagagagct	actacacgaa	cataaagtag	agttcgagag	cggcaacttc	420
cgtgtcaaa	gcgacagcgt	gacatatccc	ccgccgtaga	aggttatgac	ggcgtggcat	480
acaggggtga	ttttgggatg	gagaggtcga	gcggctgagt	accttcgata	cgcgaacgga	540
cgggaatacg	gcctgctgtc	ggagctgaag	atatatccgg	ccaatctctc	gtgacgacta	600
aggagcaggt	ggatcgggca	gtagggaaaa	tcgatgtgat	ctgggcgcac	aggtcgattt	660
tctgaaagaa	atcggcaaac	catatgagcc	aaacgcttgt	atgagcgggg	cacgtatgac	720

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...646

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:194

```
tggttcggac gacctttttg gttttcctca cttattccgt cgtacagctt cgttctcgct      60
gatgcaggac ggtcgggtag agatgggaga cgggctgaca ttctctattt cgggtgtgaat      120
ctgatcttcc tcatgttcag ctacctgtcg tctatctgat ggagcgtgct ttcggctacg      180
tttccaatat cagtttggtg agctgagcga cgtcaatacg ccgctgctca gtcagctctt      240
cggaagtggc cgccgggcac ctttcagcat tcgatccaag tgtccatcct cgctcggagg      300
cagccaccaa gatcgggagc gatgtacagc ttgtacgcac cgggctctct atcatgatat      360
aggaaaaatg aagaacccat cttatttcac aggaatcagg gagcagagaa tccgcactcc      420
aaattgcctt ttgacgagag tctcgcatta tcattcgtca tgtgaccgat ggtattgcct      480
tggcgagaaa caccgtttgc cggactccgt tategatttt atccggacgc atcacggacg      540
ggtaagacca aatacttcta taattcctat tgcaatcagt atcccgacaa gaagtggatc      600
ccgagttgtc acttatcccg ggcccgaatc cattcaacaa ggagac                        646
```

(2) INFORMATION FOR SEQ ID NO:195

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 239 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...239

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:195

```
acgctgtcgt ttttatttca attgcaccat acaggaatta aaaccgcctt atgctcgacg      60
acgcagacga atcggatcat ttcaattgca ccatacagaa ttaaaacgct ttggctgcga      120
attcccttac gggccaatcg aagatttaat tgcaccatac aggaattaaa atgtatccat      180
tatactactc caaaactga caactagttt cgggggttatt tggcttgttt tttaggtat      239
```

(2) INFORMATION FOR SEQ ID NO:196

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 726 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

aacgaaccaa	ggcctcgggg	gagggaaaga	cccttatctt	cctgtatctc	tccatcttcg	960
attcaagaga	gagagaacac	ctcccggaca	tcccgcctga	ttgcatcgga	atatccgcag	1020
gttatattct	tttattcata	cgtcgaacaa	atatggcttt	tcgccgtgca	gtaaagtttt	1080
cggataaaaa	aaaagccgag	agccgaaacc	gaaggcgata	tatggctctt	cttcttcccc	1140
cgatcggata	aatctccgac	accggttccg	ttgcaaaaac	cctaccttca	accaattctc	1200
cttaattttt	cgggcaaccg	tttattcaat	cggtccgaac	tccagaaagg	aggtgttcca	1260
gccgcacctt	cgggacggct	accttggtac	gacttagccc	cagtcaccgg	tattacccta	1320
gtggccccct	gcggttacgc	ccttcaggta	ccccgactc	ccatggcttg	acggcgggtg	1380
gtacaaggcc	cgggaacgta	ttcaccgcgc	catggctgat	ggcgattact	agcgaatcca	1440
gcttcacgga	gtcagagttg	agactccgat	cgaactgggg	aagggtttag	agattcgcat	1500
ccggtcgccc	ggtagctgcc	tttgtccctc	ccattgtaac	acgtgtgtcg	ccccggatgt	1560
aaggggccggc	tgatttgacg	tcattccacac	cttcctcacg	ccttacgacg	gcagtcctgt	1620
agagtcttca	tcgaaaactg	ttagtaacta	ccgatgtggg	ttgcgccgtt	atggcactta	1680
agccgacacc	tcacggcgac	agctgacgac	aaccagcagc	acctacatag	aagccccgaa	1740
gggaagacgg	ttttaccat	ccgtatctac	atttcaatcc	cgggtaaggt	tcctcgcgta	1800
tcatcgaatt	aaacacatgt	tcctccgctt	gtgcgggccc	ccgtcaattc	ctttgagttt	1860
cacgttgccg	gcgtactccc	cagggtgatt	acttaacgct	ttcgctgtgg	agcttgacgg	1920
tatatcgcaa	actcctagta	atcatcgttt	actgcgtgga	taccagggtg	tctaattcctg	1980
tttgataccc	acgccttcgt	gcttcagtg	agtcgcagta	tggcaagctg	ccttcgcaat	2040
cggagttcct	cgtgatatta	tgcatttcac	cgctacacca	cgaattccgc	ctgccgccac	2100
tgaactcagc	ccggcagttt	caacggcagg	ctgaacgttg	agcgctcagg	tttcacgctg	2160
acttaccgaa	caacctacgc	accctttaaa	cccaataaat	ccggaacgc	tcgcattcctc	2220
cgtattaccg	cggctgctgg	cacggagtta	gccgtgctta	ttcttacggt	acattcaatg	2280
caatactcgt	atcgcccggt	attccgtata	aaagaagtgt	acaatcctta	ggactgtctt	2340
ccttcacgcg	actggctggg	tcaggctctc	gcccattgac	caatattcct	cactgctgcc	2400
tcgtaggag	tctggctcgt	gtctcagtac	cagtgtgggg	gataaacctc	cagttccctt	2460
acccatcgtc	gccttggtga	gccgttacct	caccaacaac	taatgggacg	catgcctatc	2520
ttacagctat	aaatatttcc	ttgtaataca	tgcaataata	caagtgtatg	cggttttagt	2580
ccgtctttca	acgggtttcc	ccctctgtaa	ggcaagttgc	atacgcgtta	cgcacccgtg	2640
cgcgcggccc	atcaacctta	gcaagctaag	atcatgctgc	ccctcgactt	gcattggttaa	2700
gcctatcgct	agcgttcatc	ctgagccagg	atcaaactct	ccacgtcata	tttgtgtttg	2760
tttgcttctg	tttttctcgc	tcagacgccg	attttaccct	ttggataatt	cgatttatca	2820
ggtagtacac	ctcggtttct	tttctctctc	ggtcttttctg	tttttctctt	tgacagagta	2880
tatgtcctcg	ttgagacgg	tttcgtcaat	aacagccggt	aaatcggccc	tcctctctgc	2940
agagggcaga	aatcctgcaa	gaaatggcga	agcccttctc	tctccttctg	tactacactt	3000
ttgttcttctg	tatgaacaat	gtcaatgatc	gctgtctttt	atccccatc	ctcccacctc	3060
acggcacaga	gccgatcaag	cagcgggaagt	gggtgcaaaa	gtaaaacctt	tttccgaatc	3120
ggcaaaatca	atcggccttt	tttcagggct	gacgctcaag	aaaaagctcg	tcgcctgatc	3180
ctcccctaaa	aaaagaatcc	cgacgcgctc	ggcgggaacaa	ttcctctatc	aatcggcagc	3240
aatcgctttt	gcggtcacaa	aagtacgcct	tttttcttta	cagcaaatct	ttcaaaatct	3300
tttttcaacc	ggttcgacna	aaaaaaacag	ccccgaagaa	aaggactccc	tcccaagaaa	3360
gaagacaaaa	gggagcggat	aataatatgt	tcgcgcgcgt	aagaacaatt	aaaaagaccg	3420
caaacgaaaa	aaatgagaag	atgttttttc	cctcgcacaa	aaaagatttt	ttgaccgaat	3480
gttgccgggt	ggtccggaat	aaaggggtaca	agggaaagag	aagggtgtga	aaaaaacaga	3540
ggcaccaatc	gcacaagccg	aaactcgaac	cgaaaatgcc	caaattctca	acaaaaatcc	3600
caaaa						3605

(2) INFORMATION FOR SEQ ID NO:194

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 646 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...558

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:192

gccacgtgat	ccaaataccc	acggacgggg	aaaatgagat	agagatagcc	gtttcgcgaa	60
tgcggtcgaa	tgcaagtgc	tgatgatgt	gtatcgtatc	ttgagcagaa	cggcggcaaa	120
agccgagagg	ataccgatga	tgaggctaag	atgatgagaa	aaagcctttc	gtttatgtgc	180
ctttcgcgcc	aaaggagaag	tgcaagaacc	acccgtagcg	actcgtttcc	ttatccttca	240
tttcccaatc	ctttaaaaat	cgtttggcaa	gtatataaca	gtactttctat	atccgcctga	300
ggctcatatt	ctcgtagtac	agaaaatcgt	attgcaggcg	ttcagcattt	catccggagt	360
ggaagcatag	ccgtatcgta	ccatgcccc	ggggtgatgc	ccggacggac	attgtgcagc	420
aggtagtagt	agggagcacg	cccacgagct	gccggatgta	gaaagcccgt	tcggggcgcg	480
gccccacgaa	ctcatatcgc	cccgaagcac	attccagaac	tgaggcaatt	cgtccatccg	540
tatttgcgca	agatgcgc					558

(2) INFORMATION FOR SEQ ID NO:193

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 3605 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...3605

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:193

ttccctcacg	gtactgggtc	actacgggtc	tctcgggagt	atttagccta	cgggatgggc	60
cccgccaaatt	cacacaggat	gtctcgtgtc	ccgcgctatc	agggtgctccg	tcgtctattg	120
ttcgatatgt	cggatacgca	gctttcagct	cttcggccat	actttccagt	aggttctcct	180
atatctatca	ttaaactttg	tcgaagtcct	attaccccga	ctttgccgaa	acaaagccgg	240
tttggtctaat	ccccgttcgc	tcgccactac	tgagggaatc	acttttgttt	tctttcctac	300
gggtaatgag	atgtttcagt	tccccgcgtt	cgctcatgaa	atcattcatg	tgtcaggcct	360
tggcctgacg	ggttgcccc	ttcggatata	tgggatcaat	tcgtatgtgc	cgattccccg	420
agcttttcgc	agcttatcac	gccttcttcg	cctccgagag	cctaggcatc	caccgtctgc	480
ccttactttac	tttgttcgcc	cggcaatcaa	ttgccgccgg	cgggtatactt	aagcttgttt	540
gctctactta	aattctttat	ttgattttct	tccaatatgt	caatgatccc	tgttttcttt	600
cgtggagaat	atcggattcg	aaccgatgac	cccctgctgc	aaagcagggtg	ctctagccag	660
ctgagctaat	cccccgtagt	cccaggagag	ttgaactgcc	gacctctaca	ttatcagtgt	720
agcgctctaa	ccaacgagct	ataggactgc	ttctctctta	ttcgaactct	tccgtctgcc	780
tgtgcagctc	cttgggctgc	atgaccgttg	ccccttatct	ctctttattt	tttctttttg	840
ccctttttgc	ctcgccttcaa	aaaaagaagc	aaagttcgaa	gcgggaaagc	tcgaaagata	900

ttaaaatctc	ggcataggcc	aaattttatt	attagttgtg	tgccttagca	actttgattt	180
actccctttt	tggaagggtc	tatctgtccg	aaagagagtc	cgttataata	attctatctt	240
tttctttaaa	tcatcgagaa	gaatggattt	aatattatct	tcaagctcca	aatatcccca	300
aaagataattt	gggattgctt	cttaataaca	ctatccaata	atgaataatt	gtttgctttt	360
tttgctcggt	gaagttttct	atgatgaaag	gatgggtgaat	aattcttgat	gtttaacaac	420
atctctctca	ataccccatg	agaagtgtgc	ataaaagcat	aatattgagc	aaatgatgaa	480
tttaaaaaatg	gcaagttagt	ttcaaaatat	tttcatcaga	tttttcggaa	ataatacctc	540
gattccctta	aaataagaac	aatcgtaatc	caaaaaagaa	gccgtgagtt	atttttctgg	600
actccctcat	tcaataatag	gtgaggagcc	ctatatgatc	aacatatcct	aatcttctga	660
aaaagggaatt	tgttattcta	gtaccaagtt	aatagggtgta	taaaaacgtt	tgattgtttt	720
tgatgtgtga	tgaggattaa	tttgataatt	tcattctgtt	ttttgcaagg	aacacttggt	780
tctatccaac	accatagaca	actttatctt	taaaactcct	ttgtaaagaa	ggaagggtgt	840
ggataggcgt	tttattagat	tataatctgc	aatattgccc	caatggctat	tttccatatt	900
ttactgtttg	gaatttggca	ctccgttcgt	ggagaaattt	gatattctga	gaatcaacta	960
ataccccatc	aattaagttg	atttaa				986

(2) INFORMATION FOR SEQ ID NO:191

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 497 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...497

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:191

ggtttcggcc	gacatcggac	gggggaaagt	ggatttcagc	ttgtttctca	ggaatccggt	60
agtacggatg	ttgtatctca	gatattcgat	acagaaaaat	gtcctcttat	ttcttccaac	120
tcaaggaatt	cggcgaaaag	atgggaggga	agtacccgca	ggaggatggt	tcgaacagct	180
acttcggatc	ccgggatcat	tcagatagat	gaagataaag	aagaagaaat	tccagaagat	240
gaatggctgt	cgtaattgaa	acttgctcga	gagcccttga	tcagctaata	ggatccgcga	300
gcaggagggt	gctatgctgg	agcagggtgt	cacggagaaa	atactaata	ctcttctttg	360
cttctgcaaa	tcgaacagta	tgaaccgat	agatccaacg	aatcaaagag	cggatagaag	420
agaacctaac	caaaatatca	ggaaagactt	ccaccagaac	ngattcgaac	caagagatga	480
tttattatat	gaaaggt					497

(2) INFORMATION FOR SEQ ID NO:192

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 558 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:189

```
acgtccataa tgggtgctcac tgttgtgacc tcccattatc cgcccgaatc atccaagaga      60
ggttgaagca cagccctgaa gaggctgtcc ttgtgctcaa gtagttgtat atattgctca      120
cgggctactc ccgattcgcg agcgatgttc ggagagaagc atctcggaaa ccattgacca      180
taaatccctc tcgtgcgctc gcaagattct ggcacgagca tccatctcgt tttttgtcct      240
cgtcatttga tctcattatt ggtacatgac aaaggaacaa agcctgaaca gtgtcacaa      300
cccgtttttt aggtaaaatc gagcatgaaa gcggctgaaa gctacaacaa atcggcaaaa      360
cggctgttca taccgatctg tacaccaatc attctgatgt gtacgggaaa aaagttgata      420
ctcagaaaag tcaaaaaatc ataatcgtgt cgaacattt gaccgattcc gagcgtcttc      480
acattttgag ctgttgccaca ataacctccc acctcctcat atcgatcaag acagacacag      540
cattgatttg acgaagaaa gagagcttca tgcgatctct ctgcaaaact aagtaatctg      600
aaaaacactt aagaatcagc tctgcggcaa aagacttaat aaaagtccca taaaatagtt      660
gcaaatagct gatagttagc gcattgtggg agcagaatca agctgacaat cgcgtcctgc      720
atcgtgcagg aagcagaatc agccgacaat cgcgtcctgc atcgtgcagg aagctagaat      780
caacgacaat cgcgtcctgc atcgtgcagg aagcaagaat cagctgacaa tcggtcctgc      840
atcgtgcagg gagcaagaat cagctgacaa tcgcgtcctg cacgtgcagg gagcaagaat      900
cagctgacaa tcgcgtcctg catcgtgcag gagcaagaaa cagccgacaa tcgtttctta      960
tttctgcctt atttgacgag aaaggagtag ttctctaatt gaaacttggg gaaatttctg      1020
tttgctcgag tccatatacc ggaggtttga tctttcccaa aggcactaag aatcagcttg      1080
cagcaaaaaga gttcaatgaa actcccatgc aacagtctct accggctttg atcgtcgatt      1140
ttttttctcc gctttttcgc tgatcgggca gaacgaatct atgacctcgt tcatatcggt      1200
cgtatatctg cgcgaacgat gcttgtcgaa gagacagatg ctatagcttc tgtttcttgg      1260
gtagcaacgg tcagctatct cttccgaaac gctggcggat cgcattccca gaggataaga      1320
aacctcctgc cgcatgcgat cgatcgggtc gaaaagattg agctgatagg ccccgctacc      1380
aagtcggaca agatcacccc tgcctgtttg tagggcagat tggtcgataa atctcttgta      1440
gcagggtgcg aatctttggg atcagttctg agggtcagaa gtagctacgg gaaggagcat      1500
ctcattccgg ccggaatagc gttctcctga tcaaactcggc tacagcttat aaagatactc      1560
aaacggcggc cctgctcttt tcttcacgta tcttcgtaca gcaactatcg gcgaaaaagc      1620
caaatgcctg agaagggagt caaaatctcg gcatggatgg ccgaaaagcg cgtgggtgcag      1680
acactttggc gaggctgtgg caatttcac tctttcaggc ttcgccccta agctcctgcc      1740
atgtcctgac gcccgaagtg ccggcaaacg atataccgca ccttctctca tcgaagcaaa      1800
gtcggctgcc gtatgatacc ataatagtat agcttgcgag atagtctgcg ccctattccc      1860
caacatcgct tacatcgaa gtttgcagag cttttctcct cttttcttcg ggtctatggc      1920
gcatacgccc ttgtaacccg catacctct      1949
```

(2) INFORMATION FOR SEQ ID NO:190

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 986 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...986

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:190

```
cggtttttct tttttgcaga aatgcaatgt caccaagttt aaagggtcag tcgctgcaca      60
tcatatacag ctatattaat tccatggcca gtgccggata ahaatcattc agctcttgtt      120
```

ctgaataagt ttacctctat cgataaaggc tctttcttgg gagtaaactt cgcacgaacc	960
aatacatagg cagtattacc ctcttatagt ctgacgaagc agcattagca cctgacttat	1020
gg	1022

(2) INFORMATION FOR SEQ ID NO:188

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 622 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...622
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:188

cagaccgata cctacggcac cgaagctgcg agctatctcg gcatcgtgag agtatcggca	60
ttcgtagcaa ctttcagctt ggcatactta tcggccaagc catcagatcg gcgaaatctt	120
gatccatttc ggcggtcttc gtctccactg tccttcgtat atctcaccgg tagaaccgtt	180
gatggagatg tagtcgcttc tttgaagagg gttccatcga tctctacggg acgtgcctta	240
tagtcatgtt caatgcacct gctcccgcata cgcagcattt gcccatacct ctggcactac	300
ggcagcatgc gaagtcatac ctccgcgagc cgtcaggata cctcggcggc agacataaccg	360
gccaagtctt cgggcgaagt ctcgatacgc acatcaccac acgcttgcca tcctctttcc	420
actgagcggc atcgtcggcg agaaaacgat ctgacccgta gcggcaccgc gcgaagcagg	480
caagcccttg tcagtacacg tgctctaagg agagcagact tgtcgaaaat ggggtggaga	540
attcgtccag cttgttaggt tcgacgcgca taagggtctt tcctctcgca tcataccctg	600
acgcaagaga tccatggcga tc	622

(2) INFORMATION FOR SEQ ID NO:189

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1949 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1949

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...506

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:186

cgctttctcc	cgtccgcgtg	ccaatgggtg	gatcgctatc	gacctgcgaa	caacgatggc	60
ttggtaagtg	tccgattgac	caatggtaaa	tgcgacatgt	tattgccaat	tgcggtggac	120
gtgccattcg	tttccatgaa	tccgtggtcg	tccttcgggt	cgtacagcca	tgggagtaaa	180
gggaatgacg	ctcgacatga	tggtcaggac	gaagtantag	gaatgatctc	tatcaaagca	240
tcgnagaag	agaccattct	ggtagtaagt	gaaaagggat	acggcaagcg	ttctatatcg	300
accgactatc	gtattaccaa	tgcgggtggg	aaaaggggtga	agaactgaat	atcaccgaga	360
agaccggaag	gctggtcgat	attcgagccg	ttccgatgcc	aacgacctta	tgatcatcaa	420
taagagcggg	gtcgccatcc	ggtaaaagtg	gctgatctga	gcattatcgg	tcgagctaca	480
caagggtgta	gctcattgat	ttgtcc				506

(2) INFORMATION FOR SEQ ID NO:187

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1022 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1022

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:187

ctcaccaatt	tttattttcac	ctatatattata	gtggctcgtc	atgtttaccca	agcaaaaatc	60
gtatataaagc	cgtcttttctc	caaagggtatc	agccattctt	tgcagctgac	aactggacat	120
cctcaaacac	attggcactg	cgaagggaacc	atccttatcg	aaagcataaa	cgttcaatcg	180
ggcaacttcc	gcaggaaaga	aggatttttcg	gcacactcag	tctgagaata	gaagttgaca	240
tataccctcg	aggacaatca	tcgtaattgt	cataaatcat	cttatcgcac	gaagcaagcc	300
acccacacagg	gccattattg	ccggcaaaga	aataataagt	ctggaatata	catatgcttc	360
cgtttggttca	ttgtttttaa	aaatatagag	gggggagaac	ggtgggaacc	gaaatcccac	420
cctcaaaaag	aaaatttttac	atagctaatt	agagatcaac	ctcataggaa	tgaactttcc	480
aaggcaaaac	gtaacctcaa	ccgacatgaa	cgtatcctga	tcaggtaagg	ggttctccga	540
tctgtaggaa	caggagtacc	cggctcatcc	ggattcgggt	cagggttatc	ggattttccg	600
gattgttagg	atccggtatc	ggcaccaaag	gattccattg	aagcccaact	tcttgatgct	660
cttgatgtgg	atatggtaga	tattgtgcgc	acaacgggag	aattccacca	tgaatcgggg	720
gaagtagtac	tgggatcaac	caagcatagt	acagtacttt	gcctttcaca	tatttgtgtg	780
ccttatacca	gctacaccac	ctaccttggtg	gtctgtaacg	gatttcatag	acaatagaac	840
tggccattct	caccaacgaa	gaaatcttca	cctgctacat	atcaggaact	gcagtattat	900

gatggccaat	ggcgctccga	aatatcgccc	acaaagagac	tgtaattaga	ccagttggta	480
ccgaactcga	ttcgagaatg	gattcctgtg	gccacaccga	tcgcaaagtt	gataccgaaa	540
gcttctgcca	gaactgagca	taacgcttcc	actccggttt	gccattgcat	aatagatggg	600
ctccacgata	gccatgatga	cacccaatcc	cagtgtcgcg	gaacaaacag	ccagtgatac	660
atggctgtaa	gagcaaactg	tgcacggacc	agcttactaa	ggcatctaaa	ttcataatca	720
tacgcttata	tcttatgttt	taggggttta	ttccacgttt	gataagttcc	tgctgcacat	780
attcgatttg	gcagtgtgtg	cgctaccgac	ctgttgcttc	agaaagttcg	ggagaagaat	840
actttcagga	tggcgaacat	gatgaatagt	ttgatgagga	tatagcccat	agcgtctttc	900
ccaatttcat	attcctgaag	ccatctatat	aaagcgagct	atacgcatga	acaagttctc	960
gcgctttgct	ttgattgttg	catagttttt	tcgattcaaa	aatgaaaaac	cgtgcaggtc	1020
tcgatttttt	gctgtgggtg	ttcagctttc	ttacaaaat	aggatgggaa	ttgtttttgg	1080
gacgcgtttc	ctctctaaaa	tatcacattc	ggctcaatgg	agtcgttttt	tgtttggttt	1140
tgaaagatca	tcaacgtaca	aatcaatacc	agcaattccc	tcgcgagagg	tcataaaaag	1200
ctccacatgc	caccggatc	gaatcgattc	catgtgatat	atgacctgtg	ataggggttg	1260
ccatccactt	tacgactcga	tatccgggtc	tctcacttag	atgtgagccg	tcatacgaaga	1320
taca						1324

(2) INFORMATION FOR SEQ ID NO:185

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 508 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...508

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:185

cgccgcttgg	atctcttcat	ggtcagctct	ctggacaagg	gcggattggg	tcgggtggta	60
ttttctctat	tgctttcgat	atggtagccg	tggtggaata	ccctccagat	ccctgctcag	120
cgtctcttct	cccttgatgg	ccgacgcatg	aaacggaacg	atctgggtcaa	agccgacgaa	180
ctcttcaagc	gcgtctgctg	catcagcttc	tttccggtgg	ccttatcttc	ttgcttattt	240
gggtcaatat	cgacagcatc	ttctccatcc	tcccgaacgg	tcacctctat	gccgcggcaa	300
atatgtcggt	ttctatttgg	gaatcgctaa	gatgatcgaa	atccgctgaa	ctacggcaat	360
ccgatcgatg	gctgttccaa	gtattatcac	tgaatcttta	ctatactttt	cctcgtcacc	420
cattctggcc	cgtgctcacc	atctgggtgg	tgatcctggg	tttggaatc	aacggaccgg	480
ccatggcacg	tcttgaccac	gctgcttg				508

(2) INFORMATION FOR SEQ ID NO:186

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 506 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(B) LOCATION 1...1514

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:183

gtatcgggaag	gccgcaaccg	caccaaggca	cagatcgaca	gcatcgctca	ggccgtgtat	60
ggctcggcga	caaagctctt	gcactcgggt	tgggtggatag	cttggagggt	tggacacagc	120
tatcaaacgg	gccgcgaagc	tggctcactc	ggtggcaact	acagcataga	gtatggcaag	180
accaagcgca	acttctcgaa	gagttgctct	cctcatcagc	agcggatatg	aagtctgcca	240
tcctggatcc	attctctccg	atccggaaat	agaagttctg	cgcgaactcc	gctcatgccg	300
ccccgtcctt	cgggcataca	ggcacgtctc	ccctattact	tcagccgtac	tgataaatga	360
gacaaccgta	attgctgaag	agatggatgc	gcccgtatca	acaagtggct	caaaccgctt	420
tccgccctct	acgggggtggg	ctgaggttgc	gcaactacct	cttcgacaag	aacgtcctga	480
tttcgaactc	ttcgacatcc	ctatcgtctg	tgtaggcaat	atcaccatcg	gcggcaccgt	540
aagacacccc	acgtagaata	cctgattcgg	ctcctgcata	cacgctatgt	gtagcagtgg	600
ttagccgcgg	ctataagcgg	aaaaccaaag	ggatgatgtt	gcaaccgaag	gatcgactgc	660
atgggatata	ggagacgaac	ctcgtcgatc	aaacgaaaat	atccggacct	gaccgtcatc	720
gtggatgctg	accgggcaga	gccatcggct	atctatgcga	tctggcagaa	gagcaaaggc	780
cacactcatc	gttctggacg	atggcttcca	acaccgtaag	gtgaaagcag	accgaacata	840
gtactcacag	actacaaccg	tattctgacc	aaagactatc	tgttccggcc	ggtcgtctga	900
gagaacctgc	cggctctata	cagcgtgccg	aatggtaatc	ctgaccaaata	gccccgatga	960
tcttgctccc	atagatctta	agcagccaaa	cgcgacttgg	ccttataccc	gcatcagaag	1020
ctgttcttcc	caaatttctg	tacggacagg	gactgaagcc	tttgttttcc	gatcagttccc	1080
ttcggcagaa	gtacgtctctg	cgctggctat	cgccggaata	gcaagtcgaa	actgttcttc	1140
cgagaaatac	gcacccgatt	ccccctccgga	acggatgcat	ctatccggat	catcatgagt	1200
ttaccgacag	agagatctgt	ttgctatcca	agattggcac	gaactgcata	ggaaagatgc	1260
caatgccata	gtggatgtac	cgagaaagat	gccatgcgac	tggccctacg	acaatcttct	1320
tttcgcaaga	gatgcaggaa	agattttatt	acctgccggt	ggaagtataaa	ctatgttcga	1380
tcaggaaaaa	gtatttgcg	ataggctatt	gggagtcata	cacacaaaaa	tagcgcataga	1440
aacgtaccga	aatatcttct	ctgggtgagtc	gactcatccg	gacctaccga	tgngtcgact	1500
gaaaaatccgt	accc					1514

(2) INFORMATION FOR SEQ ID NO:184

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1324 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1324

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:184

cgccggtgaa	agctgtgata	agcgaagcag	ccaagccgaa	tggagcgata	tcttgatgtt	60
tttgagagca	aagtccttgt	gtttgtcctc	ctttcgcaca	ggtagatgcc	acatacgccc	120
aaagcaaata	cggatccgag	agtccagagg	aagagatcgt	gtgccagaac	ttattgatcg	180
cagtggaaag	gaatacaaaag	cccagaaaac	cgctatttctg	tttgcgcatc	gtatcggggg	240
tgaagtcatt	cctaccggct	cctgcatacca	tgcattggcg	ataagaatcc	atacgtgac	300
aagctggctc	cgatgatggg	cagccatgtg	gcacttaggt	gaaacctttg	ctcaccttgt	360
tccagccaaa	gaacataacg	gcaataaaaag	tacctccatg	dagaaagcca	aaataccttc	420

tagccccggc	gagcagcgtg	gcacgcattc	gggcatcggc	cttttcccc	tgatggtaat	1020
tgctcagtcg	gccgaatcga	tgtggaagcg	atcggcatgc	ccctgctctt	ctacatacag	1080
cgaaagacag	cctcggcaga	cggagagcga	cagatgttgc	cgagacaacg	aataggattt	1140
tatgtggctt	cataagcgga	ttatcgaagc	aaagggtgctg	cttggtacgc	agtcgcaagc	1200
tgttggtcac	caccgaaata	ga				1222

(2) INFORMATION FOR SEQ ID NO:182

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 648 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...648

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:182

cggcaaacat	cgctccggtt	acgaatatgc	ccagatcctg	agtggagaca	gggacatcat	60
tccatccgcc	atcgcaatgg	taatgaatgg	atccggtaga	cggctgcgtc	gatctgtccg	120
ctgcgaagca	tttccaagcg	caaagggttt	tattgacttc	ggtcttggtt	atctcgcttt	180
cgtccagtcc	tgcggtttga	taattcggtc	ggtgggtgtac	tcaatgaccg	tattgcgcga	240
tataccagat	tctttccttt	gagggtttcc	aagctctcac	ctgtataatc	tttgacatta	300
ccagccggaa	gtatccgtcg	agacgcata	ccagttgcag	atcatacctc	ctgcttgcgtg	360
catggctgct	cccgtataat	cgatgaccgt	acctccacat	tgcccgaatg	gaaagccgca	420
tcacgttcat	tgggcgaata	gacttgacaa	tctccagttt	cagtctgagt	gaatcgtaaa	480
tgccgggttt	tgtgctacaa	cgaaaggcag	atagtccatg	gaaggcatgg	ctccgagagg	540
aggggtataag	gctctttttg	tttgtctgca	gagcttttct	tgttaccaat	gaagagaggg	600
tgatgctcaa	aaccgccaga	acaaggaggg	taaaaaagaa	aaatTTTT		648

(2) INFORMATION FOR SEQ ID NO:183

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1514 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:180

tcaaccggct	atcggtaagt	aggaatcaga	ttcagcatcc	gataaagagc	gagcgtaaact	60
cccagaggaa	agtcgataat	cttgtaaccg	atggaaagag	gatgcccaca	caaagggcga	120
tcagggcctg	tccgCGgaag	tagctgtcat	attcttgtec	acttctttga	gtatgctcct	180
aacgcgaata	cgggtgtcgac	cgggaaaaga	ttgacaaatc	ctttgcccag	tttttcgaaa	240
tcgaaaggat	gaaaatgaag	tataaaacac	ctatgaagaa	gatcgtcgta	tagcgaacaa	300
gctgatcgta	cgggagacga	gcttattgag	ctgtccgaat	atcccttgct	attctccatc	360
aattttctcgt	aagagatacc	tttgaacaga	tcttcatgct	gccactctct	gacagaaact	420
tgcggatcgg	agccggcagc	actgtagcaa	attctcatcg	atgcggtact	gctggagcag	480
ggttattgtt	tgcttacctc	ttcttctaca	gcaggaacca	aagagagaat	ggcaaaaaaa	540
tcaatgccga	tatgaaaacc	agcaccgtga	tcaccgacag	aaagcgaagc	gaaaatggag	600
ccgatactgg	acaaaacgaa	ccagaggcat	cagcacaagg	caagaatcca	agagagacaa	660
aaaggtataa	ggatgcctct	caagccatga	ctatggccat	aatgcctcca	accaacagga	720
tgatgaaaaa	caggctgcag	tacggtcgaa	cgtaaattcc	ctgtcaaaaa	aactttgcat	780
aagcgtgtcg	attagaatgt	gagtgaagttc	ggataaccgaa	gatagtcgtt	ttctctgttt	840
cttttgcaat	tttcacaatc	atccatgtag	atcgtttttt	acgaggcttg	tcctccctgc	900
atgttcgggc	cggtaggcga	gtgtcagctg	actgctttct	cgaaaatacg	aacgggaaat	960
gctcggattg	cggctctgaga	tcctgaaaaa	caggcgcgag	aatttttttcg	ttgtggcgcg	1020
agaatttttg	cttcccgaac	caaaacgaaa	attttct			1057

(2) INFORMATION FOR SEQ ID NO:181

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1222 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1222

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:181

gtcagctgct	tgccggaaaa	aagcccagta	cgcgctcggt	acgaaaaaac	caatgccgaa	60
gagtaatgcc	agaccgacat	attgggcaag	cgatcggttg	cggcaaagcc	ttccactctc	120
atatcaagtc	cctgtacgaa	gaaaatatca	ggccgatatt	gaccatattg	gaaccgatgg	180
ctacaaccat	cggaaaccgtg	tgtcctgcac	ccccacatac	cagccgttga	agacatagac	240
gagcaggctg	cgggcgctcc	ccacagagcg	atgcggatat	attcgcgtgc	ctctgtccga	300
tggtctcctg	acccgaagcc	agcagatacc	cgaagcgttc	tgtagaggag	ctgctatgag	360
aagaagcagg	gctgcgacaa	ctgccatcgc	gagccacgtg	ccagatagcg	tgtgatggct	420
cgcacatcgc	tacgcccga	acctgtgccg	tgaatcccg	agtcgccata	cggaggaagg	480
cgaagagcca	aagacgaaat	tgaccacccc	cgaagccaca	gccactgccc	cgatagagtg	540
gccgtgtcca	tacgaccggc	cagccctaca	tccacgatgg	agaggagcgt	acggtaaatgt	600
tggagatgat	attcgggaata	gccaagcgca	ggatgcgctg	ttcatctcac	gccccgcggt	660
cagtcgcatg	cggatagggg	ggagtttcat	gaggttcggt	cagataggaa	aacagtccgg	720
ccgtgcactc	ttccaaatgt	ccagcaccag	ctcgaagccg	gatgctcttc	catagtacgg	780
atcgggacat	ggtcgtgaat	accgctactg	ctgaaatccg	tcatacagac	gatttggccg	840
cagcctcttc	ggtcggagcc	agttcttgca	gccgtctcgc	atggcaaagt	ccatgccgat	900
gatataatcg	aatcgttcga	aatcctcata	cccaccggac	gggagagcga	agtgagatcg	960

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1082 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1082
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:179

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tccccgcgga agatttggca gcctatttgg gtgtaaagca tgtaatccct gcgccaatgg      60
tacagacgca ttgcaaatca gtctgatggc tttgggatga aagtcggaga tgagatcatt      120
gtgcccgatt tcacttatgc agcaagtccg aagctatagg tttgttagga ttaacacctg      180
ttttcgctga tgtagacctt ttacatttaa tcttacatct aagggtgctg aaaaagttct      240
gtccgcaaga cgaaagcaat cataccagta cacctctttg ggcagtcctg cgattggagc      300
cgcttttggc ctttgccaag cgaaacgatt tgtttgttat cgagacaatg ctcaggcaat      360
gggaggggga tatactatct ccgatggatc taccgaaaaa caggaacaat ggggcatata      420
ggctgtgctt ccttctttcc acgaagaatt tgggttggtt tggagacggt ggtgctgtca      480
caacaaatga gacgaattgg caaagcgagt gcgaatgata gcgaaccatg gccaaaagac      540
aaatacaaac atgacattat cggatgcaat tcccgactcg atactattaa gcggccatcc      600
tcagagtaaa attgcaatat ttggaccgct tcaatgcctt cggaatgagg tcgcctcaca      660
ctatacctct ctgctcgaag gtattgatgg ctacaaacac cgacctcctt gcagcagtct      720
tcgcatgttt atcataatat actcttaagc tcttgatca gaacactcgc gatggactgc      780
gagacatctg acgaatcata agatcgcttc gatgatatac taccgatac caccacagg      840
caaccggcat tcgtcgggat tgctcattgg ggtgaatctt tgatgtgtcc cgactctttg      900
tcgcgaaactg ttctctccat ccccatctat cggaaatgga gatagagcaa atccatgctg      960
tggtatcagc aatcaaaaca tcgaaccgtc tttacaatga caaaagagga gggaggctcg      1020
tctatgaaga aggacgaagt tccatgatgg caaacagcat gaaactgatc agcgccggac      1080
ct                                                                    1082

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(2) INFORMATION FOR SEQ ID NO:180

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1057 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1057

(B) LOCATION 1...1025

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:177

ctcgaatgac	gtactcgtgc	acgataagta	tgagcaggac	gtaacgctga	ccatctcctc	60
gcaatgatgg	gttacacgga	tgatagtatg	cctatcgctt	cggtgtcatc	cgcgacgtgg	120
aagcaccctg	ctacgacaga	gcggtgaagc	ccagatcgaa	gagatccagc	agaagaaccc	180
catacgcaag	ctccatatct	cctcatccaa	ggagacgttt	gggagatcaa	ataaagcagt	240
ttagagatta	gtacccaaac	gggtaggatt	cgacagaaac	ctttcgggga	ggattcgttt	300
cctaccggtt	tctcttttat	gggacgagtg	tagaccgggt	attgacaggg	gtcggagatt	360
gatcgagtat	aaaagcaggg	agccatgccg	aagattgcgg	tatggctccc	tgtcagtcag	420
attatttgtg	tctgaaatac	tccgatacga	gaggagggtc	agtctttggc	ttccatacag	480
tcctcggagg	ttcgagattt	cgaatgcgcc	aatcctgcgg	atatagattg	ttggcacgtt	540
gccgagattt	ttcaggaagc	cgagcggcct	tctgcgggaa	gtggcgagac	gaagccgagc	600
ggcagatcgg	gcatgggtgg	cacagactgt	cgggccagta	ggagagagct	tcattctctg	660
aaaattccat	atcgaagaat	gagtggcgct	catttccgtg	gacaaagcca	gagccggagc	720
cggtacaaga	tctttccctt	ctgcatcccc	actgtgatcc	ctgctgtgtg	cagcctgatg	780
ccattgcctt	gagacattcg	accatttcga	gcacattggg	agtaagagca	tgccatactc	840
gtctcccatc	catcgccatt	cgtatttttc	aggggcatgt	acaagcattt	gataccatga	900
gggatatgct	ttctgcgttt	ttcttttcc	tctcttgggt	tgcttatgcc	ttaccgattc	960
tctctccggt	ttgcgaacga	gcagaagaaa	aatccttcac	ccgcaacttt	atgagggaag	1020
aaacg						1025

(2) INFORMATION FOR SEQ ID NO:178

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 622 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...622

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:178

cgttgatcga	tttcttgcgt	ttcgggtgcct	actatgcggg	ccagatctag	ccgatcaacc	60
catcagtgag	aaaggcattc	tcaatcgggt	ggagtacctt	cgctcgaagg	tttcgttttg	120
gccgttactc	ctttcaattt	caccagtttg	cttccaacct	gaatctggca	ccggccatga	180
tggggaatac	tactattgga	agccttccac	tacagctctt	catagcaact	acctccttat	240
gaaaacttcc	aagaggccgg	tttgcccgat	ggtgtgtgca	atttccttcc	cggaagggtg	300
gcttgatcgg	tcgggtagcc	acggcgaaac	aacacttggc	cggttccatt	ttaccggttc	360
tactgctacg	ttcaacacgc	tgtggaagag	cacgccggca	atatagatcg	ctatcggtgg	420
tatccccgta	tagtggggca	acggggaggaa	agaacttcgt	gatggttcat	ccctcggctg	480
aagcatgcga	gtggctacgg	ctcttgtgcg	cggagctttc	gagtatcagg	gacaaaagtt	540
tcggctgcaa	gtcgcgcata	tatccctcgt	tctttgtggc	ccagcgtgaa	gaagtgatgg	600
gcgatatgct	cgacagtatc	aa				622

(2) INFORMATION FOR SEQ ID NO:179

gatgcatggg	catgagttcg	tgaaggctgt	ttccctcagg	ttgcagtata	tcacgccttt	480
ttccttgaat	ccctgaaatc	ggcatatcgg	ctgtcttcgg	ctttcaaagc	ttcgtaacca	540
actccccggg	atagctgttg	aggattcgcc	agtagcgagc	cgaatcggtc	ggctgtagac	600
cgtctcgaag	tcgagggaaa	caccaccgga	tcgttgac			638

(2) INFORMATION FOR SEQ ID NO:176

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 669 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...669

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:176

cggccttggt	ttcgccgaac	gcttctttta	ctttgggtgtg	gtattggcct	tgatcttgac	60
gaagattcgc	cctaagcctt	ctcccagaga	agctccttcg	cgaacagatc	ttgatcggat	120
atctcatcca	gacggcggac	aaaagctgtg	cgttgaagtt	gatttgttcg	cttccttttt	180
tgaacttata	caattctcga	gcgaaacgat	agggatatag	atgtcgtttt	cttcaaattt	240
ctctagcatt	catagtctgt	cagcattaca	ttagtggtcca	acacgaaatt	ctttttttcc	300
cttttagcagc	cataacagtg	cattttttatg	atttgaatct	ttcgaaaaat	cgttcgaaag	360
ataagctttt	tcatacgaccg	tacaaccgat	tattcttttt	ttgttatata	cacagcgaat	420
aaaaacatca	caaaaaaagg	atcccaaact	tcaaaaataa	aatagaatga	aatcggacat	480
tcagattgca	gtgacatcga	actgcaaaga	atcgaacaga	tagcagagtc	aatcgacttc	540
ctgtcgaaca	attagaacca	tacggacgat	acacggncaa	agtgccgcaa	gctgtatcga	600
cgaagagaaa	gtaaaaaagg	gaaatctgat	ctggtgaagc	cattacgccg	aacaaggncg	660
tgtgggaaa						669

(2) INFORMATION FOR SEQ ID NO:177

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1025 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

cgaatgcttt	tatactttgc	atctctattc	ttgtattgct	caatgggaaa	gaatagctga	420
ccagcaattc	gtggcttccc	ctgaggcttt	agccagtagc	gatgtcggcc	actcgaaagc	480
atagccggca	agaacttgcc	caactgcatc	cccaagctca	ctcccacggc	ttgtgtgggc	540
gatacatcag	tgaggcaaag	aagcggttgt	tgtatgacat	tcccatcgca	cgtccaaacg	600
agaactgtgc	ccgtcagtag	ctgcaaagat	agaaggagcc	atgcaaataa	cgaataaatg	660
gagcggatat	tgtatccggc	aaggagtaat	aatgccttgt	cagatctaata	atgtactgtt	720
cattgagcgg	aattgcggag	cggtcagatg	ggtagagctg	aatccgacgt	acaattcttt	780
gcggggtagt	atatacctgc	accgatgtcg	aaggcctttc	cgctcacttt	ggtagggggga	840
tggccggatc	gttctccgtc	tcgagctcca	ccttggtgcc	atgaaagccg	tattgacgag	900
tccggcttgg	agggcgacgg	acagatctcc	gcgaagagtt	tctgtttgaa	ggcatattgc	960
cccatcagct	cattgatggc	aagagtcctc	tcgtttcggg	cactaccgga	actcccactc	1020
catgctctcg	tcgaagaagc	gaataggcgc	atcggccagt	acgacgaaac	tcttaggatt	1080
cggggcatgc	cttcccattg	tctattgtgc	agcgcagtaa	tgaaaattct	ttgcgcatac	1140
cggcataagc	cgttctgtag	tagccgtatg	cacggggtag	tgagccagca	ataaatcgcc	1200
ctgagcgaaa	atataccttc	ccccgccacg	gtcaggagca	ggagcaaaat	gagcgaacgg	1260
aaagatttat	gcaaactgat	gccacggtgg	taaaacgaag	ccccgagtcg	tattattgca	1320
catcggggca	tattcgctta	aggagattac	attatcagta	ctcttcttcg	ttaagaaaaa	1380
atcctctttg	ctcgataaat	ccggccaaat	atcttctatc	gttcgtagat	ttccccttca	1440
tcttccattt	cctgcagatt	ctcgatgact	caagaggagc	acccgaacgt	tgtgcatagt	1500
ctatcaactc	atctttggtg	caggccaagg	agcatcttcc	aatttgaggg	ctaattctaa	1560
tgtccagtca	taatggtag	agttttttgt	ccaataatac	ttagcatttt	gcctcggcgg	1620
aaagatttct	aaccgacttc	gcgcaaaaac	atgcgcaaaa	tagaagattc	tccggtttgc	1680
cagcatatac	cttttcaggt	caatcgggta	tcagtggttt	cctcccattg	ctatgatcgt	1740
ccgattcctt	tgtccctata	gttctccatg	ggatatatga	tctcctcatc	gcgtaccgga	1800
tcatagccgt	cagctacgca	gattgtagta	gtagctccaa	tagtgatgca	atgctctgac	1860
gacgaggtag	gcgccaggtc	cttggcatcc	tgtgccgcat	tcagatcgag	gtggaaatag	1920
ccccgacggg	gaagggtttc	acggcagtat	gatagcgcgc	tgagcgatac	tgtcgggtacg	1980
acgtgccaat	tcgaggatgc	gaagttggtg	ttgtgtttct	ccaccagcag	gaatatctgc	2040
cgggtgccaac	gctcttctcc	tgtcgcagtc	gatgctcttc	gagacggcgg	ttgctctcgg	2100
ccaagcgatc	cgaccgcgtc	cgcgccccca	atccacgaga	ggaatgcgca	cg	2152

(2) INFORMATION FOR SEQ ID NO:175

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 638 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...638

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:175

cagcaacacc	caaactggca	ccggagctga	tgccgagaac	ggacggaccg	ccaaaggatt	60
gcgaaagacg	gtctgcatct	gcaagccact	aacggataac	ctgcgccggc	aaaagcagcc	120
gtgagggtct	cgggcaggcg	ggatttcata	ggatattgta	gtgcacgagt	gcttctcctc	180
cttcgggacg	atctgaaaaa	gatgtcggaa	gatctcgctc	atcggaatag	ccaccgagcc	240
gaggagagat	taacccccga	gagaatgagt	acagcccctc	ccagcgcagc	caggtagctg	300
cgacagaaat	tgtacgtaag	tggctgacgg	atgtcattgg	agcaataata	gaaatgcggg	360
tgggtggtcg	gaagtagtcc	gggggtgcaag	atgcgataag	atcggccagc	acccaatcgg	420

ttcggggcaaa	tgcttgatag	cccaatgcgt	ggggcgtgat	ccagataagg	tatcttgaag	900
gtccattcac	gatccatggg	ccaaatagat	ctccggggcaa	aagaatacgc	ggactaccct	960
ctgtcggact	cagtgcatag	gagcaggaaa	tgcgagaagg	agaatcagaa	gaaagcctgt	1020
cggctctcca	acagagagaa	agcgcacctt	ttcatcagca	gtgtactatg	gccaatcccc	1080
ctgagagggt	tccttatata	gactcggcaa	atccttgccc	gtctgaccat	cacttccacg	1140
acctgatcga	acgaaatgcg	gtgtctgcca	tcgctgaatt	ggcataagta	ttggcatcca	1200
aagctcgtgc	tgccgcaaag	gcattcgttc	gatacaagg	acctgcacca	atccgcatac	1260
agggtcgcag	gtcatccgag	gtgatgctcc	aaagccatct	ctgcagcata	ttcgatttgg	1320
gacgggtacc	cccgaatagc	tggctgctgg	ctgccgctcc	catggcacaa	gcactcccac	1380
ttcgccctga	cagccgactt	ctgcacccga	aatagaagca	tgggtgcgtac	cacattagca	1440
aaaaggccgg	ccgtagccag	tgcacgcaat	tgcgcttatc	gctgaagtca	cgagtctgtt	1500
ggagggtggtg	gagtaccgcg	gtacaacgcc	gcacgaccca	catgtcggcg	ccgttacgat	1560
cttgccaccg	atgcattctg	ttcgctcaca	gccaaagcat	aggcatatac	attgcctggc	1620
ttcgtatcac	cggcgaatac	ccctgcgcac	gaatcagata	gctggcgctt	tccggcgaac	1680
gcccagtcca	ccgggcagca	ccccctcagc	atcgacccct	cctgaatggc	gctccgcatt	1740
accgaccaga	cctcagccaa	atagcccata	tatcgggatc	ttcgttttct	tccacatact	1800
cccaatagct	tagccgcgcc	tgttcagttc	gtcgagaata	tctgccatct	tgctgagcgg	1860
attacctcgc	gacctcgtcg	ttcgttgaag	tgttcgttgg	ccaagactcc	gcgccgatgc	1920
tatagatgag	ccagtcgtcg	agctgcttgc	cctctttgtc	aagctctcga	agagcatgcc	1980
gttgggggtga	aaattttgga	agatctccgt	ttccaaacga	tttcggtcgg	agcctttgct	2040
tccaagacgg	caaggatact	gcatccgtga	ggtgtccttt	gcccgtggca	gcaaggctgc	2100
cgtataggta	acacggaaa	aggctcgccc	ggggttccga	tcgagaaaca	tctcagagcc	2160
cgacgtgggc	caatcgtgtg	gctactgctc	ggaccgtagc	cgatggatat	atttgggtta	2220
tcgattccat	tgtatttgta	ttgtactatg	cttcagggtg	tgaaagagtg	atagtttttg	2280
aaagagccaa	cgaagaccgg	acagcgatcc	gtgtgtagtg	gctcagtaat	tgagtctgta	2340
ggaaaatccg	atcgtgcgaa	gacgttatac	atccggtaag	gaatagcctt	gaagtgtgta	2400
ccgtcagagg	gatcaggccg	aatgtgacat	cggcaaacgc	acctatctgt	gcgcgaaata	2460
atagtcggct	cctattatga	caccgaaatc	cgctccctta	tcttgtccga	gaagttcagt	2520
tcgcgcagat	ccatctgcgc	tgttcccact	tgggatcgtc	atagaccatc	gtaccgtcga	2580
tgatcacgcg	gaaggaatct	ccagcagcag	ggacgtatag	agacctccgc	gcagcttcag	2640
cctgtcttga	gcatattgta	ttccgcctgt	acgggtatcg	tcaggtagcc	c	2691

(2) INFORMATION FOR SEQ ID NO:174

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2152 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2152

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:174

gccgggtattg	ggcattggtg	atctccggtc	cgatccatcc	aaaaaggcac	caccagatat	60
agggcgcgat	tcggcaagg	atgccccata	agctgtctct	tcttttggtg	cccaaccacc	120
aatacttccc	tcggggaacc	tgtatcacc	gaaaggcgat	ggctcattcc	atgaagatag	180
cttggcaccg	ggtcagtcac	cgccaacagc	ccgtttggaa	gagccgcacg	acgaaatagt	240
gaaaatccaa	acagaaaaaa	gcctgcaaga	gcgaaaaacc	tgttctttct	acactacatt	300
atttatatat	ctgcttcgct	gctctccccg	aatcctgcgc	caagcagttt	tcagaggaaa	360

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...776

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:172

gtcaaggata	tgcatggcaa	gtatcctttc	cccagggcc	cggcaacgag	gaagtactgg	60
tcacgggaga	gaacgcaggc	aaacaaatga	agctgctgtg	gccagcggac	tcgtgggcgg	120
tctgtacgac	ttcatcgttg	gcaccttggc	tggtggacgg	agaacgtttc	cacccggtcg	180
gccgaatggg	gagccgactg	gccgagaagt	acaagctggt	ctttaaggtc	aataccggag	240
cggcctcctc	ggcctgggct	atatcatcgg	tctgccttat	gccacgatca	tctggccggt	300
tcgtttctcg	tctggttcgt	tatcatgccc	cttatcggct	actcgcccc	ggtatgactc	360
aggccatcgg	cgacgggtgtg	tcgctgacta	tcgcctgatg	agccctgagg	atattttcgc	420
cgtctatgcg	cgtcctctcg	gatcggaggt	atcgccatgg	cgggtatcat	cgggatcctg	480
cgtcgtccg	aattatcggc	cgggccgtca	agctggccgg	taccgaattg	accggcaagg	540
gacgagtacc	atcgatgagc	ctcgcacaca	gcgtgatctc	tcgatgaatt	cattacgctg	600
ggcgtcatcg	tcgctttggt	ggtgacgatg	ctttctcca	gttcaacgtg	ctattcaact	660
ggggacatac	gctgatatcc	ctgctgtcgt	attcattatt	accttccttt	ttaccactgt	720
ggctgccaat	gccatgccat	cgtgggcagc	aaccccgttt	cggggatgac	cctgat	776

(2) INFORMATION FOR SEQ ID NO:173

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2691 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2691

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:173

atggtattct	tccgctgtac	aaccgttgga	ggggcttcct	atcaatagcg	atccggatcg	60
gagatcgcg	ggccacgatt	ggcatgctga	gcgtagcgaa	attgatcatt	gctgcacccc	120
aaataccatt	gtcgcgttta	gaatatcacc	agctttccac	ttgtcttgaa	tgtcgaaaga	180
ggtacgccaa	ctgccgcacg	caccgtatgc	cccaagacca	gggcatcaat	tcacccatt	240
cgcacgagg	aagaacggag	gacgtcccg	tgccgcaagt	gcgcgcccc	tggccccatac	300
cgttgctg	caacgatgga	tataggcggt	gaacagcagt	agtgtatttg	ataaaatcca	360
cacccactc	ggagaatgtg	gcggcatcta	tccctctttc	tcaaaactac	cactcaagcc	420
atgaacgtta	agaggagatg	cttggaggaa	aggccgagcc	gcataccgcg	acgatgcagt	480
tcacgagcca	atgtttgatc	ccattgggga	aacgtaaagg	atccgcctta	attctcccgc	540
gctatcacgt	acggacgttt	gccagtggct	ttctatgatg	atatggttta	tccggctgca	600
accagtcctt	tactttgcat	cgcacggcc	acatccaaat	agtctgctcg	tttatttctt	660
tctccttcag	ccaacgtgta	ctccaacct	aacgggagcc	aatccattat	accgactcac	720
ttccacctgc	caaatcaact	gtcggcaccc	gattcggttg	ctgctgatat	ttcaaatctg	780
aatagatg	agaagaagcc	ttaccgcgaa	taattccttc	gtgggaatcg	aattaaatcc	840

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:170

gcctcagcat	cggagtgcac	ctgctcaatc	tcctttgcat	ccctgccatg	ctttgggtgta	60
ttactatcgc	cgtgctgtta	aacccacagg	caggggagtt	tgttggcact	tttggcttcc	120
ttcgccctta	tcgggggat	gatgttcgtg	tgatacaggg	tatccctaag	gttgccggcg	180
tattcgatgt	cttcgcgtca	acacccttgg	tttgagcttc	aataacgggt	tgtatttcta	240
tttctcctgc	tggtgccat	attgatattg	tctgtgaggg	agacttattc	cgtaagaccg	300
acggtgataa	gaaggggtaca	accaaatacga	tgcgcatgcg	cttgccgcgc	tgctgagtgt	360
ggtctgatgg	gtattccttt	tatcggcaat	ggatccttct	cgcatagcc		409

(2) INFORMATION FOR SEQ ID NO:171

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 674 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...674

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:171

gatcaagcaa	attcaggtag	gtgagcctag	cccctaccag	cccgtttcca	cttgacagct	60
acaacgcagg	gtcagaaagt	aacgctcaag	tgggaagccc	gagcgcaaag	aaggcagaag	120
gttcccgtga	agtaaaacgg	atcggagcgg	tcttttcgtt	acgatcgaac	ctgcaaacga	180
tgtacgtgcc	aacgaaccaa	ggttggtgctt	gcggcgagaca	acgtatgggg	agacaatacg	240
ggttacagtt	cttggttgat	gccgatcaca	atacattcgg	aagtgtcatt	ccggaaccgg	300
tcctctcttt	accggaacag	cttcttccaa	tctttacagt	gcgacttcga	gtattttgatc	360
ccggccaatg	ccgatcctgt	tgttactaca	caaataattat	cgttacagga	cagggtgaag	420
ttgtaatccc	cggtgggtgtt	tcgactattg	cattacgaac	ccggaacctg	catccggaaa	480
gatgtggatc	caggagatgg	aggcaaccag	cctgcacgtt	atgacgattt	cacattcgag	540
caggcaagaa	gtacaccttt	cacgatgcgt	cgcgccggaa	tgggagatga	actgatattg	600
aagtcgaaga	cgattcacct	gcaagctata	cctacacgtg	tatcgtgacg	gcacgaagat	660
caaggaaggt	ctga					674

(2) INFORMATION FOR SEQ ID NO:172

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 776 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

cccatctcttc	gaatcgggtct	ccgtagtctt	atacttcggt	ctttgtttga	agtactgcaa	180
tgcttctttg	agttcgcaat	aagccggttc	aatatctcca	tagtatattc	aagaaaatgc	240
gatgtataga	atgtgttgca	tatttattcg	ttgcctctgt	ctgaataact	tctgctctta	300
gctgatttcg	atcggaattt	gaaatgcaat	taagcaattc	tttttttgtg	taagttttta	360
attttatgtg	tgctgttatt	atggttctga	ttggctattc	taatacattc	ttctcgtgat	420
tcttctatta	tttgaatttt	accggattgt	ttganagggt	aagtaggggt	agatgt	476

(2) INFORMATION FOR SEQ ID NO:169

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 522 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...522

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:169

ttagcttctt	tggcctctgc	atactacgga	catccatctc	gccatctgat	ctggtcggtg	60
taaccggtac	gaacggcaag	accaccgtag	ccactctata	tatcgactat	tccgaaaaat	120
gggatataaa	gccggtctgg	tgagtacgtt	tgcaactatg	tgatgaccg	gtccgaaccg	180
accactcaca	ccacacggat	ccattggcat	tgaatgctct	tttccgtcga	atggcagatg	240
caggtgcgaa	tatgctttta	tggaaagttg	ctctcatgca	gcggcacaaa	agagatcggt	300
gctcttgact	tgcacggcgg	aatctttacg	aatcttactc	gtgccatctt	gactatcacg	360
gctccgtacc	ggagtatttg	cgagctaaaa	aggttttttc	gatggcctcg	gtgcttcagc	420
tttcgcattg	gtcaatgccc	agataagaac	ggcctcgtaa	tggtaaaaaa	cacccgagca	480
cgtgtatgta	ctatgcactg	agagcatggc	aaactatcga	gc		522

(2) INFORMATION FOR SEQ ID NO:170

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 409 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...409

(2) INFORMATION FOR SEQ ID NO:167

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 582 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...582
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:167

```
cgccctttcag tttcggcagg aatgattccc agtcgtcctg caagtcgcca atcccatgt      60
ggaagagccg agaagcagta catcgtatct cgctgcaggg cagcgtcggc atttgccacg      120
tccattacat tagcggagtc aacgcctatg cagaagcaat tttttgagcc agatcgctcg      180
tcgttccggt agaagaccgt agaagattcc gattgatttc atgtttttga atagtttata      240
ttggttgacc tgcgcaaaag tagaggagat caacgacttg taatatcacc acaatagcta      300
aaaagaatag gtccatacct atatgtgggg ggattcccat cgaaaaaagc agcccgacta      360
aggccgtgcg gaggcgaaag catagagacg gctacctgct cggccgtgcg ccggagggtg      420
tcccgtgcat aagccggatt ctgcctcttc taaggctgac gggagaagga gtaatcgga      480
agaggccgag aaaccggcgc ggtaagagc tacagcatcc tcgatactgg ccggccagca      540
taccacgggt atcttctgct tcatagcctn agccaacaca cc                        582
```

(2) INFORMATION FOR SEQ ID NO:168

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 476 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...476
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:168

```
gaggatactg gatagtatcc attgacatac ttatctcttc gccattccac aatctccaaa      60
aaggagaagt acccccccgt acccggcata ccattcttct gatattggaa tgcattacaa      120
```

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1102

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:165

ccactattgt	tgcgtatgat	catcaatttg	ggagggtact	ctgctatttg	aactttttta	60
gttctatggc	tacggggagt	tccaccattt	ttttgtcctt	ggtctatgcc	cctccactca	120
ggatagtcgg	agtcggaata	tacttgcttc	tgtattgccg	gatgtcggca	gaagacataa	180
gccccaaaaa	aagtgcacga	acaagcccac	gtgattcatc	acgaaagcac	cgtcacgaag	240
gttcattttca	gacgcataag	cctgtctgta	gtaacgcagc	ccagtacaaa	gagcaatata	300
gatacagcag	caggaagtac	catgccgata	gcatggagct	aagcccaaac	gatgaatagg	360
atgctgcaat	cctctcccca	tttctgcggg	gattgttttg	tcagcccat	gatgactgca	420
agcagcagta	gcccaccgat	aaagtcagag	tggctatgtg	gccagataga	aaggagaaac	480
gggcccgaatt	cggcgtatag	ctctacgatg	gaatatgccc	caaaacaaga	tgccggcaaa	540
agcaaaacttc	ctccgaccag	attgaaagga	tacagcgaaa	gctgtggcag	tatcgggcct	600
gcgatcacct	ggagcaacaa	acctacaaaa	gcaagtctga	tatgatgaat	atgccttccc	660
tatagccgaa	gcgtccctgc	cacatatgtt	gtatgccgaa	aaaatagtaa	acagtcttag	720
tgaaaagaac	agatcgtctt	atcgtattag	accttatttg	gctgctatca	aaagaccttt	780
tcctttgctt	tcttcaccca	cttgggcacc	actgtctcca	agaacttttc	tttttcttgt	840
gcaacccatc	catatccaag	cctatatact	tctgggcttt	tttttggtgg	agacatcagg	900
cagtgggtacc	tcatccgtat	agccatgacg	tcaagtaccc	gagctatctc	tatacgtgct	960
tgcacgcac	gctccagccc	ttgctgagaa	tacgtgtaat	ctcttgccgt	gcatggaatg	1020
aagctccata	gaagccactc	catagtccca	acgccactgt	gattggcggg	tatacttagt	1080
atgggggtca	ttttcctttt	ct				1102

(2) INFORMATION FOR SEQ ID NO:166

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 592 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...592

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:166

gcacattttcc	gctgaagcta	agattgttag	ttgcataata	ggaaagcgat	ggcttacacc	60
ctgatttttcc	tgtgcacgaa	aagttttctt	atacgtttct	ccaagaccgg	ttcgccggat	120
ccttttttct	tttttatttc	gaacggatat	tctgccagcc	atccgtatgg	tagaagaaat	180
agttgggtatt	gctactaact	taccgatgtt	tatatcgagc	gaagtattgg	tttgccgatc	240
gttgtcttcg	atatgcgatg	tgacgtatat	gcactcagtc	gattcgtatt	ctttttgtga	300
tcacattgat	tacccggcg	atggcatcgg	atccgtagag	cgactcgaag	cacccttcac	360
cagttcgatc	cgttcgatct	gatcaggaga	aaacgactca	aatcggcctg	accgcctaca	420
tcgccgtaca	cacgcttacc	acgataagga	tgaggatata	cttactgcta	aggccgntca	480
gctgcatgaa	gagcccatca	gattggggcc	gaagtcaaaa	gacggactca	gccctgcata	540
ggcctcggaa	gtaggagccg	agaaagaggc	tatgtcctta	gcggtaagac	tt	592

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:163

```
ggcgcatcttc ctccttcacg gtttcatcaa tatccaatgc ttcgataaac ttgcaatgga      60
ttcggctgtc accgtctcat tcgtacgcgt cagagcctca acgtttcgta tggattggga      120
tacccttctc tacgaagaat agtttgtagg cctcagccac cacagcatag ttgttctgca      180
aatcccgatc gagagcgctt cgttgagaag cagtttgcca agccctttgg ctatgctcgt      240
gactgtatga gagaatgcgc caaaggagtt ccacgttacg aagtacagtg gaatcgtcag      300
atctcgctgc aagcgggaaa taggcaattt gcgcgacaaa tgccaaatat ggcatcgcga      360
atacccagat tgccttcggc attttcatag gtgatcggat tcactttatg tggcatggca      420
gaagaaccga cctcgccgcc tgat                                     444
```

(2) INFORMATION FOR SEQ ID NO:164

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 553 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...553

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:164

```
ggctgctgtt ctgccagcac ttcgtcgagt gtctgataca gcctttggta aagagcagcg      60
caaagtccctg caaggcattc agagcgaatc cgatttgcac aagcctctaa aagaaatttc      120
gcccgtacgc tcgaatctgc gataggtggc aacttcattc ctgcccgtaa agcgattccc      180
tcttgtgtca gattcactcc aaccgtcggg cctttactcg ggaagcaacc tgcatagcta      240
cggacgcgga ttgcagtcta taagtgtcaa aatattatcc atacatatca aaaaatctct      300
ttattatatt atgttatcac tttcgaagat aataaaaaccg ttcaaaaaca caatcaaatg      360
gactgaacca ccaaacgact agaatctggt tttaatttat cgtaagagat tgtccagtgc      420
tttttcaagg gtgacatact taaacgatag cccgaagaga tgattttttc ggccgatacc      480
ctacttcctt cagtagaatg gaagcccgcg cgccgaatac gcgacaaata acccatttgg      540
tatggaggga aag                                     553
```

(2) INFORMATION FOR SEQ ID NO:165

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1102 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1023 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1023

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:162

ggttttaccg	tgggtctacgt	gggcaatgat	ggcaatgttc	ctnatgtcng	catttttcttc	60
ttctgagtaa	ttggggacaa	aggtagtaaa	acgggctgtt	ttcggaatgg	atatccaagt	120
gttcggattc	tgcacattcc	atctgcagag	cgttgcattt	gcaggcaaaa	aaagacgccg	180
acgaaagtgc	tctcatggcg	tcaataggat	tccaagatat	ctcttgatag	agtttttcag	240
ctgacatatc	cgtcttacag	gatgatgttc	ttagatgtct	gtgtattatc	agcaacaaaa	300
cagtgcagag	aatatggcct	ttcgtcttta	agtcgataca	aaatctctgc	cctgtgtctg	360
actcgtggca	aaaagcatcc	gtcctgccat	atataaatat	agaccgattt	gatcagtttt	420
tctgccttga	tgccgatggt	cttccttgga	tgtagacggt	tatatcgttc	gacgaaggta	480
caactgtttg	ctatctgtcg	tatggcatga	tttggcaacc	gtgctataga	agataatgga	540
tacttcagct	gataatcctg	cacaatgtct	ccctctaccc	tgacgcgctt	tggaggggat	600
aggagtttcc	ggctatcatt	acttctccgt	tttactctg	ataaaagtgc	cttcgtcatc	660
tttgattgcg	atctcgaagc	cgctgtgtct	tttacgcaaa	caatagtcgc	tgtcacttcc	720
ggatacgtaa	attgcgcata	gggatctcgg	taaccactcc	ctcgaaagtt	cgattgggga	780
gagtatgcgt	gtgcacatca	gttcatagta	ggcatcgaat	tcattggaaac	gacttctgta	840
attagcatat	cgcceaactt	ggcgtatgga	cagaactccc	ttacccccca	taataagctg	900
taggataata	ataacctttt	ccctgataac	taatggtgct	ctaaaggcta	tcggttgta	960
aaggcattca	gttgtgcata	cagaccatcc	ccagccgagt	gataatcgac	cgggactgtg	1020
tcg						1023

(2) INFORMATION FOR SEQ ID NO:163

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 444 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...444

attgaatgta caattatgaa tctatatatt gcagcataaa agttgtgggtt caagggggttt	420
aaagaaaata cagaaagatt cataacctac tcgttcgaac caaataaaat taat	474

(2) INFORMATION FOR SEQ ID NO:161

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1800 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1800

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:161

ggaaagaaag	caagagaaac	gaaaaagaca	acgaagcagg	atcgacgggtg	ccgacctctc	60
ttgaagaggg	taaccaacga	tacagagggtg	taaccttttcg	agcactatcc	gtcaaagagg	120
caaacaaacc	caagtaataa	ccctcaacta	aaaagaaacg	attatgaact	tagaatctgt	180
tttggtacct	gcggtatggt	ctacttcac	tttaaagatt	ttcgaactct	acgtacgccg	240
aggcgacgac	ttcgctgat	cgagaagctc	gactccttgc	cttctcccga	aagaatgcag	300
acttaacaca	gttaacttcc	tccttttagca	cccagagacaa	tcagggctcg	gcatcaaagt	360
aggtttcatg	atggtaggca	tgggcatcgg	acgntngctg	gctttctttc	tgacatttgt	420
tttccaacgt	gtaatagaaa	acttgacggc	tggagcttcg	gccacacatt	cgaaaccctt	480
tcgggaatct	tctgctgatt	tttggcggtc	tcggacttct	gattccttcc	atcatcatgg	540
caaggagaag	agagacaaac	aataaaaagaa	caatcgcaat	aaaatgatga	catcaaaggc	600
atccacaaaa	cttatccggg	agcacaacct	ctacacggct	caagggtata	gatctgcaca	660
tcgccaaaag	ggagatggtc	tctatctggg	agcatctgga	tcgggcaaga	gtacgctgct	720
gaacatcctc	ggtgtctcga	cacctacgac	gagggcgagt	atcgccctgca	cggcgaactc	780
atcccaatct	ctccgagaac	cgagcggcgg	agatacgagg	cagactgatc	ggatcgtggt	840
ccaaagcttc	aatctgatct	cattcaaaaa	tgcagtggag	aagttgccct	acccctttac	900
tatcagggca	tgagtcgccg	caaacgcaat	ggatggccat	ggaatacctt	cgacgggtgg	960
ggctggaaga	ttgggctgat	acctacccaa	cgaacttttcg	ggtggacaga	aacagcgcgt	1020
tgccatagcc	gcgctttggc	tgccaagcca	caggtcattc	tggcggacga	acctacggag	1080
cactcgacag	cgttacgaca	gtagagggtga	tggagctgct	gcgcagttca	atcgcgatgg	1140
gatcactatg	gtgatcgtca	cgcacgaaca	gtcggtgccg	acagtacgga	tcggattatc	1200
catatcaaag	acggcatcat	cggggctaag	acctgaaaag	agcgatagac	ggtatgttcg	1260
acttagacaa	tttgacgaat	taggagccac	cctgcgcaag	aatatgctgc	gtacggctct	1320
cacggctttg	ccgtagcctg	gggtgtactg	ctgctaatac	tgctgctgag	tgcggccgcg	1380
gattccagca	tggcatccgg	cacaatgtgg	agcagttcgg	ttgggtacga	gtgcgatcag	1440
cttctccaca	tggcgtagca	gcaaggagta	ggaggctatc	ccaaggacag	atacatagag	1500
ctgacacctg	ctgactgcgc	tatctgggtca	agctcaatcc	cgatctgatc	aaagggtcgg	1560
catactatcc	aaccagtgga	gctacgacgt	acagtacgaa	gatcggacac	actcgaccct	1620
acgaaagccg	tatccggaga	atacggcaat	atgggtcaaga	cgcacgcgac	gaaggacgtt	1680
tcctctccac	atcagacgat	gccaatgaaga	gaaaataata	gtcctatgtg	agcagacggc	1740
tgatgtctta	ttcggggaaa	gcatttcgcc	atagggaaat	acgtaaatct	gtcccaaact	1800

(2) INFORMATION FOR SEQ ID NO:162

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 527 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...527

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:159

gagatcggtc agattgcctg tccccaagta tttacgggtg tactggacgt gcctccttcc	60
acttgatcaa cggatccgaa ctggtacccg gatgcggata aggaagcact cccgcactca	120
tagcaatgga tttggaaata ggaaaaacat ggcgaaatac tcaatgtttc ccattttcct	180
attgtccttt ttcccgtctc ggcataccac gtaattccgg tagatgcacc gaaatcgaag	240
ataaagtcac cgaatccaca gccgagtatg aagcaggatt gacggcattg acgttggtgc	300
ctgacgcaga ccgacgccga gtcctcccat ggaatgcccc ctatagtcgt ccgttctccg	360
agacggccaa ggccgaagcg agtgtaaggc gatcggtaaa gttgttggtc tgagcctgta	420
taccgtctgc tgcaaatagc acccaatgat cagggcatac caccgaagcg acgcatacaa	480
acccttatag ctttatacat tatattctaa aattctattt angccca	527

(2) INFORMATION FOR SEQ ID NO:160

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 474 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...474

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:160

tcgttcatct tctcagaaga aggaatatgg atatgccaat atcttatata tggttacttt	60
gctaatagat aatcagttgg gggcgattat tcgtaagtcc agaattttga agaactttct	120
gatttgatta gtaaacaagg attaatcttc gaaaattagc atctttcgga ccatatttca	180
taaatgctat ggtaatctca agcaaagtaa ggttatcgct atatcaggcg atgttggtgca	240
attaatgatt attcttttcc tgatgagaat ttgcgttcta agcgattgga gagattatca	300
atgataccaa tgttttattg gatattgtga gtaacttatc ctcaaagaaa tttataacaa	360

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...513

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:157

ggtgttttgg	ccacacaagg	tacagttagt	tcgcatagct	accagctcga	atcgcaaaat	60
tgttccccga	aatatgagtc	accgaagagg	cgtgtccgtg	tgggtaccac	tcgtggaaac	120
gggcgaaagt	gacagcccgg	gggctgatat	ttcattcgca	agcatctgga	cagtatcatt	180
gccaaggatg	ataccacgat	acgattatat	tggcgtgcac	acattatcct	ctattgcgtc	240
ctaagtgaag	cgtttgctta	cgcctactat	caagctcata	gcacagggtg	aactgtggcg	300
cattctttga	aagactatct	cagtcgccac	cccgaaatgg	acaacgcatt	gagaagggtg	360
gcaaaacatc	ctactacacc	acggagagtc	cgacaaattt	ggagaattgg	catccctttt	420
ccttaaggag	gaagtggagg	cgagcatgta	accattgatt	gaatcatatc	agcaacatta	480
tgaatagaag	cagtatctta	tagcattggt	cat			513

(2) INFORMATION FOR SEQ ID NO:158

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 513 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...513

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:158

ggagtagtaa	ttcctgaaat	ccttgagctt	ttgcagaaag	tcgaacaggt	gctcttcaga	60
ttgtccaagg	agagcgcgtt	ggcttgcagt	tcttcccttc	tttttttggtg	agttctttct	120
tcttgaggga	tttgtttccg	gaagattgct	ttcgaagagt	ttcttgccgt	atgcggctcc	180
ttccaaaaag	gagaaagctt	caggatcaaa	cttctcagcc	gagctttcct	ctccagatcg	240
ttgtcagggt	tttccattgg	cccttgaaga	agagtatatc	ctcatcggtg	gttaatcggc	300
cttgctgtag	gcgagctgcc	tgtcgatgtg	ggcgagggtg	ataaggcggt	gtgacgtgcc	360
agattgaaga	aagctgccca	gaaatgtttg	tctccagcgt	gtagttagta	ccgttgtacg	420
gtttctcgtt	ttgttctgtc	aattctaaaa	taagtgggtg	ggatcgataa	gcaggcctat	480
cgggtttcgt	atgcgcccga	atgcctgccc	gtt			513

(2) INFORMATION FOR SEQ ID NO:159

taggactgaa	tacatgactg	acggctcatt	caacgactat	aaaatttata	gacgctgttt	1380
tgaatgcctc	tgccctgaca	tccaaagtga	tgctcttttc	ggatcagcct	tttcctaatt	1440
tcttttcgat	tttttttctc	cgggatgtaa	agacatggat	tgcatcaatg	ggcacgaaca	1500
tgctgatgag	atcgaatggg	ccgaattctc	tcgttttttc	gatatgtatt	tggatttgct	1560
ttgctattga	cagtctaaga	cccttttttag	gctttttttgc	cgaaaaaatt	acggagaaat	1620
atgctacttt	tgtggcattg	tacaaacaaa	agattaccaa	ataatgatat	gatcaacaga	1680
cgcatacgcg	tacgttttcgc	tccgagtcct	accggccggt	gcatatagga	ggggtacgta	1740
cggctctata	caactatctt	ttcgccgtca	gcatggaggt	gatatgatcc	tgcgcatcga	1800
ggatacggac	agcacagatt	tgtgcccggg	gccgaagcgt	atataataga	ggcattggaa	1860
tgctcggcat	caaatctgat	gaagggtgtag	gctatgggtg	ccgatttggt	cttacaggca	1920
gagcgaagg	cgcgatattt	atcgcacata	tgttcgccaa	tactggattc	gggacgggca	1980
tatatcgctt	tcgatacgcc	ggaggaactg	aagctcggcg	agccgaggtg	cccaacttcc	2040
aatacgatgc	cactactctg	ggcaaatgcg	caactctctg	acactgcctg	ccgaagaagt	2100
ggagcgttcg	ttgccgaggg	gacgcagtat	gtgggttcgt	tcctcgtgga	gccgaattgg	2160
acgtagaagt	gaacgacctg	attcgcggac	gagtgggtgat	caactttcca	tcctcgatga	2220
caaggtgctg	tataaaagtg	ccgacgactt	gccccctacc	atctgggtca	atattcgtgg	2280
acgaccattc	tgatggaaag	tgaccatgtg	atacgtgggt	aaggagtggg	tgcccaagtg	2340
caccactttc	atgtactgct	ctaactcgtg	ttttcgggtg	ggaagatacg	aatgccgaga	2400
ttgccattt	ggcactggct	gcttgaagcc	cgaaggaaac	cggtaagctg	agccaaacgc	2460
gatg						2464

(2) INFORMATION FOR SEQ ID NO:156

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 475 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...475

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:156

ggcgcagaag	gctctgccgc	atgtgtccac	cggagcggat	gcccttgtag	gcggaaagtg	60
ctggtgacgg	aaaccataga	tccgacgacg	gacaaaggcg	cgtggctgtg	gatggagatg	120
tttgacggc	tcgctctctg	acaggggggt	gatagaaaag	ggtatgcgtg	tggaaatcgt	180
atcttacgaa	agcatttcct	gaatgtagtg	gttcttggtg	acgacaaaca	ataataatcc	240
aacaaaaaac	ttatttcatt	atgacagcaa	caggatttat	ccttgccggt	ctgacattct	300
tgtgatagcc	attattgccg	atggcttgaa	gatcgtgcag	cagccgagac	catgatcatc	360
gaacgacttg	gcaagtatta	tcgtacgctc	agtcgggagt	caagtatcat	catccctttt	420
atcgacaaac	cccgctcccat	agcaagcgca	tcgcttatac	actacccttc	ggaca	475

(2) INFORMATION FOR SEQ ID NO:157

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 513 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

ggagcgcgcc	actctcgtga	agctgttcga	gcacgcctgc	cacgggacga	gaagaagcac	1500
ttcaatgtag	ctttcgaatg	ctcggagccg	aagggtgaagc	catccttatc	acacaagccg	1560
aattcatggc	cgtatgcgcg	atatggcaca	gctgcagccg	ggaatgagct	tctacgggaa	1620
ctccccgatt	cgtacaatct	ggtacttaat	accgatcatc	cgctcacgac	agggtactct	1680
ccggtgagaa	agaatcggta	gagccttcgc	tcacaagctt	agagcgaaaa	tcgccgagct	1740
gaaagcggaa	gaggccaagc	tgctgatgag	gaaaaaggga	agaaaccgga	ggaaatccct	1800
gttgccacga	aggagccaag	gagaacaacg	ccgtcgaaca	ggccaaaacc	gaaggcagta	1860
tcacgatcaa	ctgaccaa	atgctcagga	caacgagctg	ataggtcagc	tatcgacttg	1920
gctctgctcg	gaagcggatt	gctgacggga	gaggctttgg	cgaattcatt	cgtcgcagcc	1980
agcgtcttct	ctgagaagtg	aatagttagt	gtgctgaaaa	cccaattctt	ccactctcct	2040
tgccaataga	catggcaaga	gagtgagggt	ataatacaag	gaacccccga	aagccacggc	2100
tttcgggggt	tgcttttatc	agagcttccg	ccggtctctt	ttcctcgtcg	gaatggtggc	2160
cgggaaaaat	gcttacaatc	cgaagatcag	aatgaaaaga	tagacgccgg	gaatacgaag	2220
agagcactgt	ccagccggtc	cagtatacct	ccattccggg	aatgatatgg	ccggaatcct	2280
tcactcctgc	attgcgtttg	agatggact				2309

(2) INFORMATION FOR SEQ ID NO:155

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2464 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2464

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:155

ctatctgcat	tgtatagggtg	nataccgcag	tatgattgca	tccagcatct	actctcgcga	60
ggctatcgta	atttcacgga	catcgaaggc	ggattcgcag	cattgcgcag	accggtgttc	120
ccaaaacgga	ctatgtatgt	caaagcaagt	gtcaaaaaaa	taatatcggt	ttccttaacc	180
atcattatcg	caattgcatg	ttaggattac	tgaaaaatct	attctcgcag	tctgacgata	240
aggcttgagt	gaggctattc	gcaacggcgc	ctttctggtc	gatgtgcgta	cgccggtgaa	300
tttgcatcag	gcagtgtagc	cggagccgtg	aatattccgc	tggccggata	gcatctcgcc	360
tgaatgaact	caagaataag	aagaccatca	tctcttctgt	cgagcggca	acagaagcag	420
ccaggccaag	agcattctcg	acgcaacggc	ttctccaacg	tactcgatgg	aggcacctgg	480
gggcatgtag	ctctctgaaa	ggcgatcagt	gataacgaag	tctgagaaag	acttcgacct	540
tacaactctt	tctctattaa	gaaggattgg	tttttgaatt	tttgtcttcc	gaagacaaga	600
atatcatcat	aaaaccaatc	cttttttaca	tcatataatg	aatcctattc	tctttttactc	660
tgctgtctat	agcatgcaaa	aggtctaaaa	tccgatatta	ccgctttcta	taccctataa	720
atcacatcca	aagcaggcaa	ttgcatttga	aatatagggtc	tgatgatgtt	ccgtccggaa	780
taaaacgaat	taatgtgtta	gagatcctaa	ttgtagaagg	aagagaccaa	ggaacggagt	840
acaacctttc	aaatacgata	gccccctgcc	gaagggggccg	gttcttcggg	gaattttctg	900
tagtctgtgt	tgctcttact	attggaaatt	aatcatgggg	tgcttttcta	ttataagaaa	960
tgagtccctga	tcttcccaaa	aagggggaaa	aatgaatttt	gaagacgcaa	aacagggaaa	1020
acttccaagt	tatttttcatt	tcaccttaat	tggccataat	gtactggtaa	ttagcatgtg	1080
taacgagcac	cgtagcccta	cgccggtctc	ctgcaccgtg	caggagacat	cgtagcccta	1140
cgatcgtaag	tgtttcgtac	cggtttttca	acacttttcg	tattcctctg	cataatcttc	1200
aatctcgtac	cagaggtatc	acctggagcg	tagagaggaa	aacgatcagg	aataaaaaagt	1260
caagaggata	aactctttgc	tctctatccg	tgggtccgag	accatgaaga	gattttccga	1320

ctatatacac	aataaagaga	ggctcggata	ttgctctgga	actctatagg	agaatgaatc	180
cagagcaaag	ggctaattctg	cttgtgtaaa	cctaagggga	aataccgatac	gacagttgta	240
accccgcata	ggactaaccg	gtatgtctgt	aaacatatat	gaatcccgcg	cacccaactg	300
tcaacttttt	tcagtacaca	acagtttgcg	agaatatccc	tactttacac	gtaaagaaaa	360
tagaaagcaa	atthttgatga	ctacgtccct	ttcaacaacg	atgacctgaa	ccaactggaa	420
tctaaaggca	tcacaccgga	aaagcaatgc	gccaggtaga	agctctcaga	tatggattcc	480
cgtatcccaa	atcattgcac	ctgcttcatt	agagaatgga	atcatgcgtt	tggatgaagt	540
gacaaatccg	cttatctgtt	ggaatgggac	agatatattga	atagtccgac	tgcaacgttg	600
tcaagtttgt	accggcatcc	ggtgctgctt	cgcgcatttc	aaggatttgt	acaacttcct	660
tgatgccgat	tcaatgagcc	aactacgatg	cagagaaggc	gttctttgca	caccttactc	720
gatttgcatt	ctatgctccc	ttaacgagac	atgcctgcgc	aatgcttggc	gcacagtgcc	780
caaatcatag	ctttcaaaga	atacaagacc	gtgggtggaga	atctgctcta	tccaaaggtc	840
ttaactatgg	caatcttccg	aaaggttgct	tctctttca			879

(2) INFORMATION FOR SEQ ID NO:154

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2309 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2309

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:154

ggggtaacga	gcgacaatat	attccccgctc	atcaaaaaaat	tcctgtacac	gaccatgaga	60
tattcctgcg	tgagatcgctc	tccaatgccg	tggatgctcg	cagaagctga	aaacgcttac	120
atccgctcggc	gaattcaaaag	gcgagacggg	gacctccgcg	taacggtcag	cgtggatgaa	180
gtggcacgca	cgatcagggtc	agcgaccgcg	gcgtagggat	gaccgaagag	gaggtggaga	240
agtactcaat	cagattgctt	tctccagtgc	ggaagagttt	cttgaaaagt	acaagacgac	300
aaggccgcca	ttatcggccca	cttcggactc	ggattttact	cggtttcatg	gtgtccgagc	360
gagtggacgt	gatcacgcgc	tctttccgag	aaatgctacg	gcggtgaaat	ggagctgcga	420
cggatcgccc	gaatacacgc	tgaacctgcg	gacaaggctg	accgtggcac	cgacatcggt	480
atgcacatcg	tgaggagaat	agcgagttcc	tcaaaaaaga	aaagatagag	gggctcctcg	540
caaatactgt	aagttcctta	ccgtgccgat	catttttcggc	aagaagcaga	atggaaagac	600
ggcaagatgc	aagatacgga	cgaggacaat	cagatcacga	cacacatcct	gcctggacca	660
aaaagcctgc	cgacctcaag	gacgaaacta	taagggaattt	taccgttcgc	tctatcccat	720
gtccgaagag	cctctttctg	gatccacctc	aatgtggact	atccgttcaa	tctgacagg	780
atccctatth	cccgaagatc	aaaaacaact	tggatctgca	gcgcaacaag	attagctcta	840
ctgcaatcag	gtttacgtca	ccgatgaagt	acagggtatc	gtccggactt	cctcaccttc	900
ctgcacgggg	tcatcgattc	gccggatatt	ccctcaacgt	atcgcgctcc	tatctgcaga	960
gcgatgccaa	tgtgaagaag	tctcgtctca	tatcaccaag	aagggtggcag	accgtctgga	1020
agaaatttta	aaaacgaccg	ccccacattc	gaggagaaat	gggatatgtc	gaagctctcg	1080
tcgaatacgg	tatgctgacg	gatgagaagt	tctatgagcg	tgacagccaat	tcttcctttt	1140
caccgatatg	gacggacaca	agtacacgtt	cgacgatacc	gaacgctcgt	cgaagggtgta	1200
cagacggata	aggacggaca	ggtaggtatc	tctatgctac	ggacaagcat	ggacagtaca	1260
gccacgtgaa	acgtcatccg	acaaaggcta	cagcggtgatg	ctgttggatg	gtcagttgga	1320
tcccatatcg	tgagcctgct	ggagcaaaaag	ttggagaaga	cacactttgt	cctgtcgata	1380
gcgatacgat	caacaatctg	atccgcaagg	aggaaagagc	caagtgaaac	tgtccgatac	1440

cgaaattcca cggtgaggat ttgtcagcct tgagcgagag ttgcaagggc gtttgtccca	780
tctttcacca ttgatgtaaa cttctgctcc ctgtgggttg gaaaccattt ccaagcatgc	840
gtctgtttgc cgaaaag	857

(2) INFORMATION FOR SEQ ID NO:152

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 377 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...377
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:152

gtcagatttt tttctttata aaatccctga cagatgttta cgtatttata atgatatgga	60
gaccgtggta gcaaagatta tttttggagt aggtaaagtg gtttcgtcta tgtgcgggtc	120
aattccggac agtggaagtt gcattattct atcgcgatta tcaaggcagc gtgacggata	180
ttaccgatgc ctccggacgg tggtacaccg catgcgatac agcccatggg gaaaattact	240
gcataggatg gtacacctta taccggaagc gaagagttat ccaccgacta tgacggcttc	300
tcttccttgg acggggttat acagggcacg agtatcttcc ctgtttggat tggatcaatat	360
gaatgcccca ccgtcca	377

(2) INFORMATION FOR SEQ ID NO:153

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 879 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...879
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:153

tacacancag caccacgaag tggcgaaatt tccgcatatg cagaaatatt tttcgtatat	60
actccgataa attttcgtat atacgggaaa taaatttctt atatacgcaa atatatttct	120

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1072

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:150

ggaactccat	tgtagtctgc	tgcaagagca	gctgcaccga	taagtacata	ccaacaccta	60
ctttacatcc	tccataagac	tgacggtggt	atccggcgaa	cgttctacca	tcataacctgc	120
aaactggat	tctttgcaca	tgaacaccgt	tcattgggca	cgaatacgcg	gtcgaatata	180
acaagagctt	catgtcgccg	aattcagagt	tgccgaggtc	aatgtctgcc	ccttcttcca	240
ttttggagtg	tcgcatgact	ggcgaccata	gatcataata	acgccttctg	catcctggga	300
acagcaaaaag	aaacggcata	atcagcatca	gcttcgcgca	taggatcgta	ggcatgatca	360
gatgctcgtg	cgaattgact	gctccggttt	gggtgccttt	gcaccggaaa	cgacgatccc	420
atcttcacga	acttcaacaa	ttgcagataa	agatccggat	cggcttggtc	tgaggggagat	480
aaaccgcgat	ccctttgggg	tctgtcatgg	ctccatctac	gaccaagtcg	ttgtcttgtc	540
atatttcatg	tactcgatga	aacgcttggtg	ataagtggta	cccagagctg	atccatttctg	600
taagtagtag	aatagatggc	attgaatgca	tccattccac	acaacgctgg	aagcatgaag	660
ctgttttttg	tcccatgaga	cgctgctctt	cactttgtct	ttcagatcct	ctgtgctctt	720
gatgtagatg	gcagaacgat	tcacttgctt	accagtcaag	tttgaagttg	ctgtcattaa	780
atgctgtatt	cgtccatctc	tgcaagctta	taagtcatag	ctactgaatt	catgaggggac	840
gaatcatggg	atgatctaca	gggttttcga	tcctttcacc	cagaagtaaa	ccttcagatt	900
aagtttccga	agactttcta	cgtactgttc	gtagtcatca	tagtttcttt	gctctttaag	960
tgataaaaact	ttcgctttat	tctgttttta	gtcgattcta	atgtgtttca	ggctcttcga	1020
ggaaaagttt	agattccttg	taggccagga	ctgggggttct	ttttctgggt	ta	1072

(2) INFORMATION FOR SEQ ID NO:151

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 857 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...857

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:151

gacttggagt	ccgggcgaaa	gagcgaagag	gaattccgaa	ccgagctatc	cgatacatag	60
gaaaagaatt	gacctatcag	cagggtgtacg	atgctctctt	ggttttcttg	aggagatttc	120
ggccgaaaag	ttcgattata	tcgactccta	cgccccgatt	atcgactctt	cctcctctcc	180
aacaccaatc	cttatgcctc	gatttggcca	tgagtccgcg	ttttcttccc	tcaggaagga	240
cgctgatagt	ttctttgata	aagtctatgc	cagttgtcag	atgggggaaat	acaacccaat	300
gaagatatatt	ttctcgaaat	gatagccgac	agcgggtatga	agcggaggaa	accctcttca	360
tcgacgacgg	accggctaatt	gtggcaacag	ccaacgactc	ggtttccaca	cctattgccc	420
cgacaatggg	gaaaactgga	tcctgccatt	actcgactcc	ttcgcgaaaca	gaaataaaga	480
agggctgtac	gcgaatcggt	tcgctccgta	caagccccct	tttcgtatcg	aaagaacggt	540
gcttatttctg	taggctcttg	catcgatgaag	tccacgttca	gcttattcga	tccagtcctg	600
accagttgcc	tgtaatagca	tcgatagcca	cgggaataga	ccaccgagta	catccaatac	660
caccacacttg	gcttccacac	ggttgtgatt	atacgtatga	tgggctgttt	accgggaata	720

aagggatgct	tactgcacgc	tgacgtggct	gacccatcgc	cttgctggca	tgcttccttt	780
tgtctcggcg	gatatactcc	ctccgtgacg	gatgctttct	tcgagaccat	gtcggcttca	840
cgaccacagg	agccacgata	ttccccgagg	tggagtcctt	gcccagggca	ttcttttctg	900
gcgtagcatt	atgcagtggc	aggcgggtatc	gtatcgtggg	ctttacggta	gggctgctcc	960
tatgctcggg	gcaggaaagt	cgtttcgcaa	atatacaatg	cggaaactac	gggcatcatc	1020
cacgatcgtt	tctgccgcgt	atccgtcagg	tgccacgccg	gctctgcggg	gtctatatct	1080
cggaaactgct	gtgctgatac	tgcttttgtg	ggtgggcccc	atggggcggt	cgatgccatt	1140
tgccacgctt	tcacttgat	ttccacggga	ggctacccac	gcgcaacggc	agtatcgcgg	1200
agtttcagtc	ctcatatc	gaatagtcac	ctcgtttttc	atgttatacg	gcagtcctca	1260
gcatcaagct	tcagactttc	tgatggtagg	aaaaccggga	aaac		1304

(2) INFORMATION FOR SEQ ID NO:149

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 529 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...529

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:149

ggcgaaagaa	acaccgcagg	acgataagga	agctttcctc	ttcaacgtac	ggttccgcgc	60
gtactctctg	tcttggggaa	tcgcaacccc	agtgggttagt	accgggtatc	aacaacatcc	120
tcgaaggcgg	ctatgtaaa	gccgatgcac	taccgctatt	ccggtggata	gtatgatgca	180
gcgcggacgc	agagcgtcat	ggctcttgac	cgactacagc	aaggccaaac	aagccggcga	240
catggagctg	ccctacagca	caaatccggt	atagacgaga	atttccccta	tttcgctata	300
gctatatcca	gcacaagaac	gacatagttc	cccccggttg	gctacctact	acagcttccg	360
tatcatgggtg	ggactcggta	tgctgttcat	ccgttattcc	tcattggcatg	gctcctgagc	420
ttcaaaccgg	aaaaattcag	caaatgcgat	ggttccacat	gatcgctatc	gtatgtatgc	480
ctcttgcatg	gtagccagtc	agagtggctg	gatcgtaccc	gaaagtgga		529

(2) INFORMATION FOR SEQ ID NO:150

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1072 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...764

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:147

```
gcgctatagc cgtctttctc caaagtcttt acttgcgtaa ccacacaaga ccaacttcga      60
taacagtgca tggcagattc ttgccctcgg cactgaatcg gatgtcattc cgattttctt      120
tcctaataaa cctggcattt cagttttatt aaacgtttct caaactttga tttccacttc      180
cacaccgctg gggagtccaa ttcatcaga gcatccacag tcttggcagt agagttgtaa      240
atatcatcaa tctcttgtat gaagagagtt cgaactgctc acggctcttc ttgttacgaa      300
cgtagagcgg ttcaactgtga aaatccgctt atgctgtggc agagtatagg accgctaacc      360
atcgaccggg ctgctttcac cgtctttacg atttctcggc agacttgccc accagcatat      420
aatcgtaaga cttcagctta atctaactct ttggctcata tctatgttgt tcttttattt      480
gatcaaatca cgcgaccctg agcttcggta agcacctgct tagcgatggt agagggcact      540
ctgaatagtg agagaaggtc atcgtactcg tagcacgacc gctcgttacg tacggagagc      600
cgtcacatag ccgaacatct cagccagagg caccttacct ttacgatacg tgctccggta      660
cggctgcttt ccataccttc cacctgccgc gacgcttggt caagtcgccg atcacatcac      720
ccatactctc ttcggagtca ccacttccag tttcataata ggct                                764
```

(2) INFORMATION FOR SEQ ID NO:148

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1304 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1304

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:148

```
ttcggacatc ttcaatagaa gccgggttg atcagaccga tgtattcatg ctctgacgga      60
aaattcggag acgaatgtcc tcgcctgctt gggagccagc gtttcggtgt attcaagacc      120
atcgccaagg aagagaatat agactacttt cattggctga ccgccttgat ataggcacgc      180
tcatcaacaa aaaactttgg ccgcggctc catctaccgc atattcctcg gcgaagatac      240
gagtaggtga agtgcctgac gctggccaat gccgatgtgg ccgaactcgt ggctatcgcg      300
gagcaccggt caccaaaaga ccggtgaaag atctgaacat tccgagggga ttaccttcgg      360
cggcatggtg cgcaacggtg tcccgc aaat gaccatggcg atacggtgat cgaaccctac      420
gaccatgtag tggattctg ttgaatacac cactgaatat cctgaaagac ttcttcggct      480
aacctctctt tcggacggca cggcgatatg ttgcagcaca tcaatttcaa attcggttcta      540
agggtggtagg ctctctatgc ctgtccgaga ttctctttct gttgattttc tgggtatatc      600
cgtctactac aaggggagcg atctgttgcc ctttgttaca ctataggagt gatggccgcg      660
gtaggctcct gtttctacct gctgggcgcc gtgctcgtat gaacaacgca agtcggcgcg      720
```

tgattgccct	cggtcagggc	tgtctgatga	gcagattgtc	atcctccggt	tgaagaatgt	180
agaggtaatt	gaagtaccct	gtttcatcat	gagggtacga	gtgtacatct	gtcccgaagc	240
atcatgaaaa	gctcgcgttc	gctcatcggg	agaaaatcga	aagcctctcc	ggacaaagga	300
ccggccccgg	caacttttca	ctctcgaaag	agaagataac	ctctaatagt	ctccttcggt	360
agcactatta	gcaccatcgg	tagtacgaat	gaacgtctac	cgaaattgtt	ttgttcgaac	420
tgatagggtta	atccggctct	gttttgtcgg	gatacaactc	catcacatag	tgcccgttgc	480
gcgagtaaga	cggtagaccc	ccataccatt	gtaactatcg	ctgagcatct	ctgccttccg	540
taaacattgg	ttgccggaaa	taaagctccg	gcatgctgat	catatacatg	gtattacctg	600
caatactcga	aggtccggag	agcgaacgca	tctcggatcg	cgcccgtttt	gtcccacgac	660
aagggttaagc	tcctccgagg	gggacagatc	cgtaagccct	tcagatctac	ctcaacattg	720
acttgctgat	gacgacgtgt	atatcttcat	aagtaacgga	cgtttgcaaa	cccttgaggg	780
aagcaacgga	actaccacac	gaaaggcgat	cgtaagaagc	gtttcgtccg	gatataaacg	840
tcgaatacgg	tcatgagata	attccccgag	agcttggggg	tgaattcgca	ttggggcaaa	900
acagttcgtta	atgaacatag	ttgaccaaag	tgctctgcta	acggcaggcg	gatcgaattc	960
gttctccaga	aagccggaaa	agcttcagcc	ggagaaaccg	gactcgcctg	ccaatcgtga	1020
ccacagtgcg	cagtctgtat	cccagcgtca	tactctcatc	gcccataaga	tcaaaactat	1080
ccggagtcct	tccccactat	ttatatggta	gtagggatat	agcctcactg	ttctgtgcct	1140
gtaggagtaa	caagaagcga	ctgcactcgc	gaatcaaagc	tcgggtcttg	ccgacagacg	1200
gcaccgacca	taagaaggaa	agaaaagaaa	aaaatgagac	agacgaaaag	aaaactgctt	1260
catactttat	aatgtaagtc	aaacaaagat	aagggttttc	ccccttgttt	gggaagctcg	1320
gagctcaata	gcagattgat	gacctcgact	cccttgctgt	atgtgaagca	ccttccttat	1380
aatagaaaaga	taccctgtgat	tgtaatcttc	aatagtaaga	gaacagagac	tacagaaaat	1440
tccccgaaga	ggccggcctc	ttcggcaggg	gctatcgcat	ttgaaagggt	gtactccgcc	1500
ttggctctct	ccttctacat	taggatctct	aacacattaa	ttcgtgctta	ttccggacgg	1560
agcatcattg	gctatattgt	tgttaatact	tcaaattgca	ttgccctgat	gagaaagact	1620
gcctgcatgc	ggatcggcat	gcagccgtaa	catacaaccg	tagtacattg	cgctcttacg	1680
gagtcgggtc	gtgtaagaga	atcgatgccg	ctacggcttc	cccggctctc	ttagtacgaa	1740
gccgccggcc	atcgaaatca	tactgaagat	aaggccaagg	ccttgctcgc	tcagggactg	1800
gcgcagatat	tgaagagggt	gttatagtgg	ttgtaggctt	taatacgaat	ggagccggac	1860
ggttgatttt	atattcggca	tcaaattcgc	ccacataggt	attctgtaga	taggattgtc	1920
ccgatagccc	acattcccgt	tgataaggag	acgggtattc	gcaaacgact	actcaggagc	1980
agttctatat	cgggtgtcctg	aaaagagggt	tggtcgtctt	gatgctcgtt	cctatctgca	2040
ctttgtcact	aaggcttcga	gcatattggg	gagctgctgc	gacagagtgg	tggtggccac	2100
tgccgtcagt	tgtctgtacc	gcttcccga	ttatagacat	tctccggcgt	ataaaaatttc	2160
ctaagacaag	aagataaacg	atctgcttcg	tcacgcaatc	ttcgcgtgga	tgagactgcg	2220
aaaccgacgc	tccaattcgc	tgtcggaggt	gggtgcttga	tgtcgaagct	gacagcaggc	2280
tgcaacatgg	caccattgat	ctgagcaggc	aattcacccg	aatggtagtc	cgtctgacgt	2340
cgctcacgag	agttcgtcca	agtcgttcag	attggctgtc	agattgtatt	cggccgttac	2400
atcagagttg	cgtgcatcgg	attgccggca	aaattcacac	tactgccttc	ttgatgctga	2460
aacgtttttg	gacaatctgc	cggagggttg	aattataagg	cccgaaca	gttccagccc	2520
tccgaataca	ttcagatccc	ccaatgtagg	taatcgatac	gcaaactctc	accggctgat	2580
ccgcgtaagc	catcgccgtc	tgcggatcca	gtatcaaatac	cacctctgca	tccgggtgtca	2640
cgcctaattc	atgaccaagt	ggaaatccgt	ctccggatct	cctcccgtag	caggtgaagt	2700
agagaaggac	gatccggcga	agtttcttgt	ctcgctcgct	cacgctgctt	ttcggatcta	2760
cgaatcgcaa	gaaacgatac	tcttccgctg	tcgaggctgc	gtaaaagtca	gcacgatatg	2820
ggttcctttt	tcggaaatca	gatgacgtcg	catctcatcc	ctccgggcac	atcgcgcaaa	2880
tatgcagcac	cgacacataa	acccggccat	gtatattgng	gttgtcccgc	tccggcacgt	2940
ataagcaagt	atattacgag	cttactgac	tttcagatcc	actttgatgc	atcgaaagcg	3000
cgatgcgaga	tatgtgcatt	gagtcggccc	gtatgccc			3038

(2) INFORMATION FOR SEQ ID NO:147

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 764 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(2) INFORMATION FOR SEQ ID NO:145

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 554 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...554

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:145

cgggcagaat gttcatgacg gccagcatga tggagagaag tgccgtcatg cccagaattg	60
aggccagttc caagaggccg ggaaaaggct gcccaatgcc cgaagccacc tatctgtcct	120
gcccccttctt tggatgaagac gtacttctgt cgcttacgta gctgcgcatg gtgcccatac	180
cttgtgctat tccggcggta tggcttcgaa tagcgaatat cgatatgat cgatgggtata	240
gatggatcca acggtcggag gctcactccg ataagtccgc cggtatctac cggcgcgtta	300
tagtcagctc ttgccttgct cgggctatgg acagggtat ggttcgctg catggctgcg	360
aatggctccg atcacatcgc ttgcatcagg cacaacttgc catttacggc agtgatactg	420
tcgcccgtt tcagctgaca gcataagccg tcccttgggg catgacgcta tcgatgacga	480
acggcacctg atggacataa agccgctgtt ggctttgagc acacgcttca tcatatcgtc	540
ggaacatgta cgat	554

(2) INFORMATION FOR SEQ ID NO:146

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3038 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3038

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:146

gacgtgtaac gttcgccgat cgagccgtca ttttacttcc aaaacgggca tgaggctttc	60
ataaatatca gccggtgtct tggcatagag aaagacggat ttctgttctc agtctcgtaa	120

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:143

ccccggcatc gaccatccga tagcgatagc ccggagcaat cagaatctcg tcggaaaaat	60
cagcgtttcg actccttgct cgtccatcca atcgagtata tgcggatggt ctactacga	120
gacagggcca catcttcatt ctcatagctt cccactgatt gacttttaag gattcttgcg	180
atgtatgcga agcggagaga ggcttcttcc ccagccaata gagactttcg agcgtccgta	240
cggagtcgtc ccaacggcaa cgatgctgcc ttgccaatca cgcagggtt ccaggatgag	300
cgctcaatga ctatcagttc acgggtgcac cggtgttcac cgaagtctcg cttttgacgg	360
gacggaaagt gccggctccg acatgcaggg tacatcgaca accggagtac cctgtgctct	420
cagccgttcg aactcctcct cgtgaaatgc aaccggccg taggtgctgc caccgaacc	480
agatttttgg atagacggtt tgggtaggtt tccaagtctt cctcttcggt atcccatta	540
gatagggggg aattag	556

(2) INFORMATION FOR SEQ ID NO:144

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1498 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1498

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:144

agcaatttga ttagcactt tggccgagta agagtaagcg tcttggtcgt atacatcctt	60
cgttgaggca taccaccacc gagagcattc ttctcaatag gagggttttc aggccacctt	120
tggcagcacg ttcggcagcc gtataacggc cgggcccctcc accgatgata gctaagtcgt	180
agcgcatagt ttataaattg ttgcgttcga tatccttaaa gtagttgtac gtgccacctt	240
tcagcccaca caggcagctt cgtcacagac aatgatactc tgacgatgga gctgaaggct	300
gtgatcgtcc acatttggtt gactgcacct tccacagctt cacaagagca cgggcttttag	360
tatgtccgtt cagcaggatc attacttccc gtcattccata attgttcccta ctctacggt	420
gagagcacgt ttcggaacct gttcgtatcg ttgtcgaaaa agcgactgtt agccagtacg	480
gtatctgtag tagcgtcttg atacgggtgc gagaggtaag agaagacccc ggctcattga	540
tgcgatatgt ccgtcaggtc ctatcccgcc gatgaaaagg tctatgcccc ggcagcttca	600
atagctctct cgtatgcacg gcaactcggcc gtcaggtagg agcattgccca ttgagaatgt	660
ggatgttctg aggcaggatg tcgataggtc gacaaatgcc gatgcatgaa tgaatgatag	720
ctctccggat gctcttagca aggcctacgt attcatccat gttgaagggtg attacgtggc	780
ggaagatatg catccttctt tgcattgcttt cactaactct ctgtacattc ctacggcgaa	840
gaacctgtcg gtagaccgag tacaaacggg ttttcggccg tagagctgct ttatggatac	900
gctcgatgac gtagtcggct gccattttgg aagcttgcg taatccggct ctatgattaa	960
tctcattgta agattggggg agtccagtag tggatatgat atattactga cgatcggctt	1020
tcagacgttg gctattttat tgccaagctc ccaacccttc tcgtacaggc catccgtgta	1080
gacatctttt gttccaaagg ttcgcctacc atttcccaac ccatttctct gcaaaaggaa	1140
ctatcttttt cacagcctga ccggcccctg taaaggggccg aacacgctca gatagcgatc	1200
ttttacctcg cgaagacgga tcattccatg atattcttga tcggtgaaaa gatctcattg	1260
ctgtatgtgg ggctccgatt atcactgcct tgtacttaaa gatgtctgcg caggatgtta	1320
gatccggact gaatgctaca ttgtggcata caacgttgcg gatgcctnct gcgcaatgcc	1380
ctgtgcgacg gtatctgccg atacttncgt attgccgtac aagtgccgta gagaatcact	1440
gcaccttctt cggcttcgta tcggctcacc gatcgtagag gtcgaaggct tcagagaa	1498

ggacgccaca aggcccaata gacaaaattc ccattccggaa gtagtactta acccaacaaa	240
aaaccagaaa taaagcaatg aatatcgata attcttccac aacgattcag ggaagaccat	300
cgtcgt	306

(2) INFORMATION FOR SEQ ID NO:142

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 619 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...619

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:142

ctgaaatgga ctatggcggt tgggaaggac ttcaaaggga ggaggtaaag tgcaattccc	60
tgaattatat cggtaaatat gaagaagacc cctttcatat tatccgaaaa ggggagagaa	120
tcctttcgat gtccaagaac gagtcagaga ttttgggaga gagagattct ttcactacca	180
agcagcgta atcaagtgtt atagtgcac ataaaaaac aggtagaata ttattgaata	240
atgtttagag ggaaaggaat cctcttttag ggggagacag atggataatg cctcgttgca	300
aagatctctg taaaactagg aattgtagaa gtcgagtatg agataatcga gtatttctct	360
cttaataact gatattttaa tggatattca aagatagcga agttcttcga gcagttgcaa	420
aatcaagatt ttgctcaatg gaggattgtt tcggtaaata tgacgttgaa ttttctgatg	480
atacagctga actttttctc agtcatgtga tcatgttggt ttgttcaata acagactcac	540
aaagtcatgt tgctcaaaac atcagattcc atactgtcaa ttggtgggtt caggctcata	600
atagggggaa gattgaagc	619

(2) INFORMATION FOR SEQ ID NO:143

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 556 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...556

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...866
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:140

gtaaaaacac	agtatgacga	agcctgaacc	acagacatca	atatcttcaa	ataagaaatg	60
aaaaaagaca	gcgtaatttt	cgatctgac	gaaaaagaca	tcagcgccag	ctcaaaggca	120
tcgagctgat	cgcacgga	aactttgaag	cgaacaagtt	atgcangcta	tgggtagctg	180
tatgaccaat	aagtatccga	aagttatccc	ggcaaacgct	attacggtgg	ttgtgaagtg	240
gtagacaaag	cgagcaaadc	gccatcgacc	gtatcaaaca	actctacgga	gccgatgggc	300
caacgtacag	cctcactccg	gagcacaggc	caatatggcc	gttttctggc	ttgcctcgaa	360
gcaggcgata	cgttcatggg	actgaacctc	gacacggcgg	ccacctatcg	cacggctcac	420
tcgtcaatag	ctcgggtatc	cctaccgtcc	catcggtctac	aatctgagcg	aagagacggg	480
aatggtggat	acgaccacat	ggagaaaatg	gccatcgagc	acaaacccaa	gctgatcatg	540
gcggtggttc	ggcctattct	cgtgagtggt	actacaagcg	tatgcgtgga	tcgctgacaa	600
ggtgggtgcc	ttgttgatga	tcgatatggc	acaccctccg	gtctgatcgc	tgccgggtctg	660
ctggagaacc	ccgtgaagta	tgctcaatcg	ttactttctac	gactcacaag	acactgcgtg	720
gcccccggtg	cggatcatcc	ttatgggcaa	ggacttcgac	aatccttggg	gcaagaaaac	780
cccggggcgc	agatcaagaa	gatgagcgca	ctccttgact	ctgccgtatt	cccgtgtaca	840
ggtggtccgt	tcgacacgtt	atagct				866

(2) INFORMATION FOR SEQ ID NO:141

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 306 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular
(ii) MOLECULE TYPE: DNA (genomic)
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: UNKNOWN
(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS
(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...306
(xi) SEQUENCE DESCRIPTION: SEQ ID NO:141

ggcatatcca	tggatgatgaa	caaatatccc	cacgtacgtg	ccgccctttc	tggactgagg	60
agatcgctcg	tttggtcgt	cagcacaatg	atgccaactc	ctctcgctgc	ctgcacgctt	120
catctcggac	gaacaggcca	aagctatttg	aaaatctatt	tggagacgcc	ttttgaaggg	180

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...614

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:138

```
ggatccccgg ccaaatgagc tgtcgcaggc agtacggagg agtaagtcag atattgaagt 60
ccgagatccc ggcgtcgaac aaagccatgt gatacgaacg gcatgcagtt ccagatcaga 120
ctcgccacta ccccttgtaa tgaagaagtg ttggggatga gattccctac aagtttgctc 180
atattgtaat tgtcctgata tgttgtagt acttacactg tttcgtctcg caaagatagg 240
attatccgtc tatatccgat gaaggtttat agcacttttc cccttgcgaa tctgggaggg 300
aagtcctgtt tttctttatt cgacatagt atgagccgtt ttgtcgatcc ggctttagggt 360
gagaggggtt ggatatgtat tgaaagcact gtctcccat ggaagaatgt catccgcatt 420
tcattaaaaa tacgtgccaa aaaagttttc aacaacgaag acgagtttgg aatgattcta 480
aataagcgct aaaaagaacc ggattttgag gtgaaaaaga agagaaaaca ggctccttgg 540
atctgaatct gcttttccgg agtttgatc acgatttata tataaatctt tttgattgta 600
tataaaacga tttc 614
```

(2) INFORMATION FOR SEQ ID NO:139

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 548 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...548

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:139

```
ctgggcaaaa catgacgaaa cgatgagcta ccgtgccgta ccagggtgtgt gtacaccaat 60
cccagggtcg ccggtgtggg agagacggaa gaatcgctcg caaagcagga cgtgcctaca 120
ctgttcgtcg ccttcctatg gccttctcgg tcgatttgta gcagaaaacg aacaaggcaa 180
tggagagtgc aaactatact tgatgaagag aaccgcttga tcggagcaca cctcattggc 240
aatccgccgg cgaactcatc gtaaccgctg ccatggccat cgagaccggc atgaggatcg 300
acaaatcgaa cgaatcatat tccctcatcc gactgtaggc gaatcctaaa agaaactctc 360
gccggagggt gatactcttt ctgccctttt ctaggaaatc aaatctaaaa agtccgtgca 420
gtcaacaaaa actgcacgga cttttcctct cttaatatct ttttctcaga gtattcggag 480
taccttcgaa gacagcacc gaaaaacgag acctttggaa aataaggaga tggaggaaaa 540
gacttaaa 548
```

(2) INFORMATION FOR SEQ ID NO:140

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 866 base pairs

gccccagaaa	ataaaacagg	cttaagcata	tccccgtgaa	gaggggttgcc	atggtactaa	300
aagtccggtg	ctctctttat	gaaccttcat	gtcgttctca	tcaagttgaa	atgaatcctg	360
tgggattgca	cggaggaaga	gtatgccctt	ccccgtgttc	actaatacaa	aagtagcggt	420
ttttctcatc	ttcccagagc	gttgattatg	ctccgggccg	tgagaatgct	gaaaattcct	480
ttaagattac	gcatagcgcg	acagattggg	aaatggaaga	ttcgagatgc	aaaattcgat	540
ccccatgggt	ggagggtttt	gctatatatt	cgggcccaca	aagcaccccc	aagaggatgt	600
agttcttgaa	ggaagagttt	atctgcttga	tatagaaaat	atgacaaaata	gtttacgact	660
aaatgacaac	gaatatgcac	acagcttcat	acatcattcc	cttttctcat	aggccgattt	720
taccccatcc	gtgtcgtcat	accactgcac	tattcggact	aagcaagaat	atctctatga	780
cgaaaaagaa	gaataaggct	tccatagtct	cctcaaacat	ataaggcacc	cacgggatcc	840
tctag						845

(2) INFORMATION FOR SEQ ID NO:137

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 615 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...615

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:137

cggacagctt	gcgatattgg	aaatgcgagt	catgatgaaa	gggggtgatcc	agaatcctat	60
agggtcgaat	tgggagaagt	agaacccggt	cttttccctcc	gatcggactt	tctgtcgtca	120
tcgaccgcaa	tcgtcttttg	gcttcgccca	taatggctat	tctgcttcaa	tctcatatcc	180
aggagagcag	ctcgatagac	cgtgctcccc	gtctatacgc	ctacggatag	cagtcgctac	240
cgcttccgga	cgaattgccg	gtcgctcctg	tttgggctgt	tcgcagcagc	tttggaggga	300
ggatagctcg	acgtattgga	aaaatgtggt	tgtcgggtcga	gatataccct	gcatcagcat	360
gtaccttggc	atcgcgcat	ggcttgggga	caaagtatcg	gatcgggtgag	ccgttggcga	420
ttaggcaatg	agggattggt	ggggcttttg	tctattataa	ttatgcccgga	tcattctttg	480
ctggggcagt	tctgacggct	atttacgata	tggcttccgg	aatccgttgg	gaagataaac	540
ccgncttatt	atggtaccca	acgacgcaaa	agccgttgga	cttcttgaag	caaactggac	600
tattcttctc	cgcaa					615

(2) INFORMATION FOR SEQ ID NO:138

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 614 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(2) INFORMATION FOR SEQ ID NO:135

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 555 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...555

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:135

agaaaggctg	tcggacatat	gcctatcggc	agctctttcg	ctgtagttcg	aggcaagact	60
cgaacttcga	cctttgggtt	atgagcccaa	cgaagctaca	ttgctccact	ccgcgatcaa	120
ttgtggcaca	aaggtaatcc	tttttgctaa	aaaccaaacc	gaaaaagcaa	tatagctcca	180
atttctaata	gtaaatcaac	acaaagagaa	aaacaaagac	cgattaagaa	gtacctctaa	240
ccggtaactc	aaaagtttat	ttctgtgttg	caatgaaata	caaacaattg	agtcgaggag	300
taaagataca	tgattgatcg	gctcttgaaa	cagggtaccc	cccttctttc	atcgctcaaa	360
ccattgaggt	tgaagagtac	cgtctccggc	agcgtatcgc	atttgaaagt	ttatactgta	420
tccttggcct	ctttcttctg	tatttggggac	tctcgcacat	taattcgtac	ttgtttgata	480
accgagtgtg	caatcgtttg	gtttataagt	gtgttaacag	ttcaaatgta	attgtcctga	540
gccaaagtgtg	aggaa					555

(2) INFORMATION FOR SEQ ID NO:136

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 845 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...845

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:136

ccccggaaac	caattggcat	gaacattgaa	aatcgacata	aaaatcgacc	ctgaatacag	60
cgttcatgga	gtatttcatt	ttcggatact	tcttcgatgc	tacgatcttg	ccatcggcag	120
gtgctacaac	ggcacggtcg	tcattggaaa	ggggctgtgt	ctcttaggac	aacgaaaaaa	180
gttgatcgta	agcagaagag	gaaaatggca	atgatcatta	ctaaatagga	tacaatagaa	240

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...586

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:133

cgcccccttta	cgggaaggaa	tttcctatgc	cggttcgtgg	cagaagataa	acggaaggcg	60
gacctcctgc	accgtacctt	tatggcggat	gcgggggtgag	cgacctcaag	gctttcgaag	120
tgatttttaag	gcatattccc	catgatgtgc	tttgcattgc	gctaattcca	cgcccgtacg	180
ttatctccaa	ttattcaaca	cgcgcattat	gcgggaggag	aatggagcaa	tcgcggaacc	240
aacggatcga	ggggggccact	tccacggcaa	tgggggttttc	cgaagtatat	tccgaaccac	300
ccttttgatt	acggggagatc	tgagttttat	gtacgattcc	aatctttgtg	gatgccttat	360
gtaaaccgggc	ggatacgggt	aatcgtgatg	cgaacggagg	aggggggata	ttccgtttta	420
ttcccggggc	ggattctttg	aggaattgga	gacctgtttc	gagactccgc	tcgaagtccc	480
cgtaaaggga	tggccggagc	ttacgggatg	agatatatga	aggccgtttc	cgccgaagac	540
tggaaacggg	gttgccttcg	tttttcgcat	ccgcgacagg	cggtcc		586

(2) INFORMATION FOR SEQ ID NO:134

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 544 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...544

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:134

ctgaatgtgt	ataaaggaat	atatcattga	gccattttata	tctttcattt	ggagtagtaa	60
tgttcctatc	attacatgac	ggagcataaa	ttctttttgt	cttgtcttaa	tgtatcatta	120
gctacaaagc	gataccgtag	acttgaaaac	tatcagcgaa	ctgccaatat	tgtttgaaac	180
aagagtgggt	attatagtta	tagcctcatt	tagtaaaaac	cacatcattt	gatgaatttg	240
caggcaattc	ttgactttga	caactgggta	tataagactg	atactatatc	attattcgat	300
gtaacagatg	atgtccatca	tcctctctga	tgaacccttt	tattttctaa	gtattgcaac	360
aacattctca	tcataataca	ctggcggtaa	aactcattat	cattctgggt	cttataatca	420
tcaccctgtt	gtacagttat	gatgaaaaca	cacttgacat	ggcatcaata	taaagttgat	480
gattgntttt	gaatctgcat	agattgccaa	gtcaaaaata	tccataatgt	tggatttgta	540
attt						544

tttgaccgat	gcctgccctt	actgtttggc	tattatcgag	agaccttgca	aaaggctcat	240
gccacgaaga	ggggaaatat	gaaactactt	gtgattttacg	gattttgtact	atcttgcgga	300
cgcttaattc	ggaatcaaat	actactataa	taaagaatca	agacaatgga	ctctaaaaatc	360
caggaactaa	ccgacaaaat	ttatcgcgaa	gggtcgaaaa	aggcaacgag	caggccgcga	420
aaattatcgc	tgaggctgag	gcaaaaagcgc	agagacgatc	aataatgcca	aggctgaagc	480
tgaacgcatt	tgagcgatgc	aaagaagaag	gcgacagaat	ttcagcagaa	taccgaatcg	540
agttgaagct	ttatgctggg	cagatgctgg	agtcgctcaa	gagtaccatg	tggatcaaat	600
ttccggagag	atcgtttcgg	ccaacgtaaa	agcggcacga	ccaaccccga	attcatgcaa	660
cagatgatgc	tcgatatggc	caagaatggg	cttcgggcga	gagcatcatt	atctctacac	720
aaaacgccac	tgacttcagt	cctatttcga	aagcaatgcc	aaggacttac	tcaacaataa	780
ggtgcgatca	aagaggtgaa	caaccaaccg	gtggcctata	ctatccagcc	caagatggct	840
catacaagat	agaattcggg	gaggaagagt	tcataaatct	ctcaagagtt	tcttgcgccc	900
caggctgggtg	gaaatgcttt	tctaagtcac	gccaaatatt	acgccactgt	agccgggtctg	960
cccaacatca	ctgtggaaga	cggaaattgc	cgtttacgtc	cttgcagttt	ctgcaggagc	1020
ttaggcctac	ctgagtcgaa	cggatagcaa	gctcttcgat	ctcctgcttt	gggagcagag	1080
aatcagttcc	ttcttcgcta	tctggaggac	agcga aaaagg	ccaaggcgag	gagtcccggc	1140
cgactcttct	tctcttatga	tacgctggat	ggcatctagc	tgccatctcg	gagaaacgtg	1200
tcattgccccg	tatggattcg	ttgccgagca	tttccgcact	tttttgtcgg	aaaagctgac	1260
tgagatgttt	cgcggggaaga	agaaggagac	gttggacaaa	tgtccctgtc	ggacactgaa	1320
gccaagaagg	aaaagcacgc	ctgccaatct	ccgacgaaga	tcgtctggcc	attactatta	1380
tgaatatgcc	atgaaatgcg	gcaacgactt	cctggaagaa	tgtttgcctt	gaatctgcat	1440
atcaagaaca	tcttggccgc	gatcacgtgt	gcaagttggg	ctggaatccg	atcaattata	1500
ttgtcgggtac	cggcgaaatg	aagacaaatt	gcgtacgtca	cgggctcgcg	acttcgactt	1560
gggcgaagac	tgccctatct	gtccacactc	ttttctgtcg	gtgaggagac	ggacattcca	1620
aacgcgaacg	tctgcttgat	gtgattcggt	gggagtggtc	cgaagatcgg	tattcaaccg	1680
cgtattcacc	gtagagcggt	tgctctgcta	ttattggagc	tggcgatcat	cgagcggttg	1740
gtgaagtgtg	acgaaaagac	gggaaggaga	ctttccgccg	catcgtcaag	actctcaaac	1800
acgagagcgc	agatcttttg	acgagttcag	aagaaatcaa	aagaaataaa	tcaagataat	1860
ggtacaaaag	gagttgttaa	ggggatttgt	tccaacctcg	tgaccgtgga	gtcgacgggc	1920
cgggtttccca	aaatgaaatt	tgctacatcg	atgtcaatgg	accaagctga	tgagcgaggt	1980
gatcaagggtg	atcggcaaaa	atgcttatgg	cagggttttcg	aaagtactcg	cggatgacac	2040
gtaggagatg	aggcagagtt	accggcagta	tgcttgaggt	aacgctcggc	cccgggtatgc	2100
tttcgaaaac	tacgacggtc	tgcaacacga	cttggaacaag	atggacggga	tcttcccaaa	2160
cgaggcgatt	atactcccgc	tctcgatgac	gacaagctgt	gggactcaag	cctttggcca	2220
atgtgaacga	caatgtgatc	gcaggctcat	ggctggagag	gtgacggaaa	atttccaacc	2280
ggacaagatc	atggtacctt	tcgtttcgaa	ggcaattacc	agggtgaaaag	tctggccaaa	2340
gccgggttcgt	acaagtgaac	catgtgatcg	ctgtggtaac	ggatcaggac	gggaaagacc	2400
aaatgtaacc	atggtgcaga	aatggccggg	gaaacgtgct	atcacttgct	tcgcgagaag	2460
ccgcgtcctt	tcaaactgct	cgaacgggt	atccgtatct	cgacactttc	aacccccatcg	2520
tagagggtgg	tacgggattt	atccccggcc	tttcgggtacg	ggaaagacgg	tgctccagca	2580
tgctatctcg	aagcagggga	agccgatatc	gtgacatttg	cagcctgtgg	cgagcgtgca	2640
aacgagttgt	ggagatcttt	gcggaattcc	cccacttgaa	tgacccccac	acgggcgtaa	2700
attgatggaa	cgtaccatta	ttattgctaa	tacgtcgaat	atgctgtggc	ttcgcgtgag	2760
gcatccgtat	atacggccat	gacgatagcc	gagactatcg	ctccatgggc	cttcgcgtgc	2820
tgatgatggc	agactccact	tccgttgggc	acaggctctg	cgtgagatgt	ctaaccgtct	2880
ggaagagctt	ccggaccgga	tgctttcccg	atggacttgt	cagctatcgt	agccaacttc	2940
acgctcgtgc	aggatacgtt	tacctgaaca	acggttcggc	cggttcggta	cgttcatcgg	3000
tacggtatct	cccgcgggtg	gtaacctcaa	agagcctgga	cggaaaacac	caagaaagtg	3060
gctcgtctgt	tctatgcttt	ggagcagatc	gtgccgaccg	caaacgttat	ccggctgtaa	3120
accccatcga	tagttatcga	agtacatcga	atatcccgaa	ttcgagagct	atatatcgaa	3180
ccacacagtg	cagactggac	tactaagggtg	aatgagctgg	aagatccgct	tgcacagggt	3240
aaagaaat						3248

(2) INFORMATION FOR SEQ ID NO:133

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 586 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(2) INFORMATION FOR SEQ ID NO:131

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 605 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...605

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:131

```
cccgggtgatt atgatgaatt gcttgtttct tcgggtggtat cggacaggag gagaggacca      60
ttggattctg cccgatagcga cgacaagatt agaaaaattg ctgacatatt ctattcaaaa      120
gtagtgcgcc gatcggtaag gtcgtccaac agctcagtaa cgtcgtccta acagatcggg      180
aaggtcgtcc taacagttgg taacgtcgtc ctaacagctc agtaacgtcg ccctaacggc      240
tcagtaggtc gtcctattcc gatgtgaggg tcatcccttc tgcttatatg ggtttttgtg      300
cttgtaggaa gacatgccgg aggtcgttac cttatcattc gaaaggctcc gtaattttcg      360
agagaggata tgccggagag atctccccgt acgactcgga agcattgac ttcaccgatg      420
ccgtgccact gacggatact tggtaggttg ggtaatgaaa tcggatgcat cacaaccaac      480
agctccgctg atgagagcgt gaactcctcg ccggagcctt tcagtttgat accggaagcc      540
ccgaagcgtt tatatccaat gctctgagac ggccggtgag gtttacagag aagcttcccc      600
acagg                                           605
```

(2) INFORMATION FOR SEQ ID NO:132

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3248 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3248

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:132

```
cgcaatcgga gtgttttttg ctcgtaagaa caaaagcaac agcttcgcga tattgattcg      60
atggatcaac atcgaaactc catggcttca tgcgggggat agcctccatc tgaaaaaatt      120
gaaactcgcc ctatatcgaa tacagattat aattgctaaa tgacaaaaat tgcctctcct      180
```

gggatcgat	cgcgccctgcc	gatgcttatg	cacttggtgt	cactactata	agcaaggtct	360
gatgaaagaa	gcacttcggc	cacttgccgc	tgtaccactg	acgccgggtc	tctcggtgca	420
gagtcggctc	tctatctcgg	aaggcacagc	tggccgaggg	gatgacgagc	gaggccctta	480
tggctttcga	aaggctgcga	ctcaggacgt	caatcggccg	gtacgggagg	tcggaatgtc	540
aatatggcta	tgctcatgcg	tagtacggga	cagtcgagct	tcggtcagcc	gtacgcattg	600
cggagaactt	cctcaatgag	tttccccgat	cttccccacg	gaacagatgg	ctgctattct	660
cgtcgaatca	tatttcaccg	gcaagggttac	aattcttccc	ttagatcgat	ccaaaagatt	720
gcacagccga	cggctccatt	ctggccgcca	aacagtttgt	gctgaaccgt	atggcagaac	780
aaaagaagca	gcgggctatg	acagtgaagc	actttctttt	gtgtcgagca	gtaatctatg	840
ggaaacaaag	gggaatatatt	ccctgaagca	tatttcctcc	gagcaatctg	cggtatagag	900
ccggtgactt	tccgactgca	gctgcggtat	aagagcctat	atctcggccg	ccggtgatcg	960
tgatgcggcg	aatcttccct	aggatattat	cgtctgggct	attctctatt	caatgccgaa	1020
cgttacgatt	ggctttggag	gccttccaag	antatgtatc	ccnatccggt	att	1073

(2) INFORMATION FOR SEQ ID NO:130

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1274 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1274

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:130

cgcaatgata	ataggttctg	ttataaatgt	cgcattggat	cctctatttt	ctatgctttc	60
ggctgggggtg	tgaaggtgc	tgcgtgggca	accattcttc	aagaatcatt	acaacaatca	120
tttacacctg	cttctttatg	aaagcagggt	gaaagtttcg	tttgcttgt	tcgtcccaac	180
gataagaatg	tacttgacat	cataaagata	ggattttcaa	tgctctgttt	gcaactcctc	240
caaacctttc	gattagttaa	ttgcagagag	ctgccgtaaa	atatggggca	gagggtgtagc	300
agcagtaggc	atcgtttctga	aaattgtaac	attgggaacg	aactggtttt	cggattttgtc	360
aagggactcc	aaccgatggc	tggctataac	taggggcaga	aaatttccaa	agggtaaaag	420
aggcagtagc	ttgttccttg	aactgacaac	ctcattttgt	gtactttgga	gcactttcat	480
actcgttttt	cttctcctgt	tatcagttgt	ttcggcaaag	acgaaacaat	gcaagaaatg	540
cacgaattgc	ccttagagcc	aatacgctaa	tgtttttcac	tttcggctcc	agtttgtgta	600
ttccacacta	tatatggcaa	tcggaagagc	aagacaggcc	ttttgctcaa	tattggacga	660
cagggactct	tctttattcc	tgtaatgtgc	tgctcccatc	atattgggga	ttgaacggag	720
tgctttatgc	acaacggtag	ccgacgtctt	tgcaactttg	atgacactgt	tccttgccat	780
tcaattcata	gggaaattcg	tcataaatca	catctcacia	cagagaatct	acatgttgaa	840
cataaaagat	atgattatgc	taagacttac	tcaaactgaa	gatttaagac	aataatctct	900
ttatgctcta	caaaaggaca	gatacaaaaa	ggtcagacaa	ctttattctg	aagattattg	960
ccctatgtga	tgcagaaaga	atttagtctc	attgtttcgg	accctccgtt	atacacgctt	1020
ttgcctgcac	ctttgcaaag	gggagattca	atggacggag	aggggaaaaa	atgtatcaaa	1080
ctgctctttg	tcattgacac	ggagcttgaa	ttactgaaaa	tgcgaaatcag	ggacttcttc	1140
ctgcattgcc	agtcagacct	gctaagaaac	tctgttgaca	ggcaaagcaa	cagattagtt	1200
gaactccttt	atgctctcga	cacttcaaca	gtatcaacaa	ccgagaaaaat	agtgtagagg	1260
aactggcaga	cgct					1274

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:550

tgacattctt	gtcctgcagg	ccgttcatct	tcaggagcat	atagccacgt	taccacgctt	60
cacattttct	atctcgcgtt	cgatcagggt	ggtaatgggt	cacccatgtt	gtagcgagcc	120
acgagcagac	gactgaaacg	tgccggtcgg	gatctccgtc	caaaatgcgg	aaaaggcggg	180
acacatcatg	cacaattccg	tattggcagg	tcatagcgta	gtgtcggagt	aaatgcgagc	240
agtggctcat	taaaattccc	cgtagagagc	aaagcgatgc	cttgccggacg	ttcacggccg	300
gtgtatgata	gaggatgaga	gccgttttgg	catggacttt	cagccgggca	tactgtaaac	360
gatccgaatc	cccgaacggc	gcatacgctc	tgcaaacgca	agttgttttc	ctcatcgaat	420
cgggctttca	actccacgaa	gcagatacct	tctttccact	ctgtgcagcc	gcttccaatg	480
cactgataat	gacgaatttt	cagctacgcg	atactgtgta	aggcgtattt	ccgacacatc	540
ggtgagatgg	ccgcttccat	cagcaggcgc	acgacatagt	catacgtaag	taaggcacat	600
gaatcaggta	gtccttccta	cgaatgcctt	ccatcaggag	ggggcctgct	ccaaatgctt	660
cgagaggaga	ggctccggcg	tgagtgtccc	agtctggggg	caaacggatt	gggcagcata	720
gccagatctt	gcagatgacg	tagtttccac	tccgaatcgc	ctcctccgga	tcgatgtcgc	780
acgactgcag	atgtatcgca	gcacctcgtc	gggcatgcgc	ccgtcataca	tgatcgcgta	840
ggagcaccga	gcctgcgagt	cttcaccttc	ttgcggatct	ctcgggcaga	tcttcaggac	900
gctgtgcatac	caacagcaaa	tcggcatcgc	ggacactttg	atcgaatagc	tgtccatcac	960
ctcgtatccg	gggaagacta	atccagggtgc	tctttgataa	tatcttccag	aaaagagtag	1020
taataaaaatt	gtcgggtctgg	agccgtggca	gctctacgaa	gcgaggaagg	ccgtcgggtg	1080
cacattgagc	agtgcatagc	tgtaggcctc	gtccgtctct	ttttcttgag	ccgaacagcc	1140
agatacaccc	tacctgaacg	gataaatgta	cgcacctgct	cggcagcaac	agcatcggat	1200
agagcagagg	gaaaatctcc	tcgtgaagaa	acgacgcagg	taggccttat	gatccggatg	1260
agtggggggca	tgcctacgca	gtcggatacc	gngttcctcc	aagggtgggca	ggatctgatc	1320
gtaaaatccg	ataatacagt	tcgncttgga	ctgaatac			1358

(2) INFORMATION FOR SEQ ID NO:551

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 582 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...582

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:551

gtggtaataa	aactattacc	cgattcgctt	cggatacaac	cgctgatcta	aaattaattt	60
gacctctcta	aacgaaattt	ttcattcaga	attcgacact	cttattaatc	aaccaaacgg	120
aaaaggatat	gaacaaaaag	aacattacat	cggatcaatc	atcgcagtac	tcgccatact	180
gcttatcacc	tctttctgtg	gaatagagat	gtacgtaata	aattgcggat	cgctcagcac	240
aatgtgaagc	cgcattggac	tccattcggt	acctcaaaga	tgccaatgga	aatcctatgc	300
ggaaaagaaa	tcgttcacgc	ccactatcag	cgaattgaaa	gaatgaacac	tgagatgtac	360
gagaatatcc	agtctttgca	aaagaaactg	caaagaaaat	tctggcaggc	tccgatatag	420
gcgtagtcgt	agtggacacc	attatcagga	caagatcatc	gaatacacgt	tagacagtct	480
ggtaaatatc	ccttctccga	tcagaccatc	aatgccaaaca	gcctcgttcg	catacatcgg	540
acaatatccg	tctgcaacaa	ttcacataca	cttggacatt	cc		582

(2) INFORMATION FOR SEQ ID NO:552

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1365 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1365

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:552

aggatccccg	caaaagagtc	ttcttcgttc	gtgggtgctga	tggtaatatg	ccaaagtgc	60
gttcactgac	tatcaggatg	cagaactcaa	aaaaggagca	tcactttcac	ttatacatc	120
cccgttaaat	aagttaagag	ggaaatagaa	aagtgtagta	acaaagcagg	ccctcatcgg	180
cctgcttttc	tttagttaag	tatatactcc	catgcggcca	accctccggc	ccaacctacc	240
gacacatcgt	atccggcaat	atcgcaactg	aggatatagt	ggtgaccggg	agcctacagc	300
ccgtctgctt	aaagatgtac	ctgtccccac	aaagggtgtc	aagccaaaga	tatcaaagct	360
atagccccat	cttctttcat	tgacgtactg	catatatctt	tcccgggata	gagtttacca	420
agcatgggtc	cagagatcag	ccaatgctca	gggatttgac	gaaagttcta	ttctcttctt	480
cgtcgtatgg	aattgatttc	aacgggatct	accagtggaa	tagacttcga	acgaatcaac	540
cggatgacat	cgagcgaatc	gaagtgtctt	gtggagcttc	ctctgcttgt	acggatctaa	600
tgccatcgga	ggtgttatca	atatcatcac	ccgtacacca	aggatccttt	tcgcgtatct	660
gcttcggctc	gatacgatag	tcgcgaggac	agaaatacga	tgtggcagca	ggagtgaaac	720
gtgggatctt	caccatcagt	ccggcgtaga	atatagagca	gacaaaagtt	atattttggc	780
ccgacagttc	gagcaggaac	tgaatgttgc	aggcaatacg	acatggaata	taatcaagaa	840
gtttacaatc	tctccgacgg	aaaacttatc	cttcaacctt	acggactggt	gaatctgcgt	900
aagcagcact	ggacggataa	gatcgatttt	cgtacaactc	ctacgatgtc	aaagccgggtg	960
ccaactggcg	tatcagcgag	cttcggatct	ggacgtctct	tatcattacg	acaaatatag	1020
ccgtgatact	gtctgatcaa	gactgagaac	caaaagaaac	ttcccatttt	cgatgaggta	1080
tgcaccattt	gcgagcacaa	tacaatctca	atcttgctga	agtccacttc	tcaatgtggg	1140
tctggagtat	atccatgata	atgtagcatc	gccccgcttt	cctctccgaa	cgacccgggg	1200
gaaaagtccg	tgaacaacaa	aatccatacg	gacagtacat	atataaagtt	acccccaaac	1260
tcgtattgag	ctatgaaggc	gcttggacaa	gcactccgga	ttcggcttgt	actatacatc	1320
gcgctgtctg	ccatgttcaa	gtgcagccat	gtcaccaatc	gcttg		1365

(2) INFORMATION FOR SEQ ID NO:553

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 449 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...449

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:553

gtcgaaaatt	cggaaaactt	tacacaaaac	gcaaaaacaa	taacacacta	taataagtgt	60
ttttatgaaa	agtttttcgga	aaactttttca	acaacgaacc	ttttcctatt	gtccaattaa	120
tatatacttc	ataacattgc	aggcacaaca	gaagttattt	acataaaaca	ccatgtcacg	180
caaaacgtac	acattcacga	ggcatacaaa	gcctcgcttg	cctattttga	tggcgatgag	240
cttgcgccaa	agtatgggta	atgaagtatg	cgctgaaaga	tgcccaaggg	aatactacga	300
aaaaagccct	atggacatgc	acaagcgtat	agcctccgaa	atactcgcat	cgagaaaaag	360
tatcccaatc	ctctttccga	ataagagctg	ttgatctctt	cgatcacttc	cgctacatct	420
gtgcctcagg	gaagtccgga	taccggtat				449

(2) INFORMATION FOR SEQ ID NO:554

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 449 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...449

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:554

ggcgtaatgc	ctgatgtcca	tggactctcg	gcacaggatg	ctttgtacag	ctacagctct	60
cagggttgaa	agtaaggacg	aacggatggg	gacatgtatg	gctcagtcgg	ttccgtacgg	120
ctctaaagtg	aaagtggggc	agactgtgtc	atagacttat	ctatgtaaag	aacaaggaat	180
gggaatgaaa	ctcgaaaata	tctctcggaa	ctgcggccga	tagctgtcat	tggcaatatc	240
gaacagaagt	atcagatatt	gcactctgatt	ctcgcaaggc	tacggacggt	gcaccttcgt	300
agccgttcgt	ggaacactga	cagatgggca	cagatacata	ccgaagcata	cacacaaggc	360
tgtcgcgcct	ttgtcgtgga	ggaccttccc	gagaaaagcc	ggaaggatgc	tgttttgtcc	420
aagtgtcggg	tacagccgaa	gatttgctt				449

(2) INFORMATION FOR SEQ ID NO:555

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1086 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1086

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:555

ggaatacgtg	tcggcagatg	gagaggaggg	gtatccgggc	gagctgggtct	tcggatcatt	60
tacagcgtca	cggatgaggg	cgcattgcac	atagactacg	tgctactgcg	gatgctccta	120
cggttctgaa	tctgaccaat	cactcctttt	caatctctcg	ggtgcaggcg	atccctccgt	180
gcatgatcat	accctctgat	acaagcccgg	cattatctcc	ccacagacga	tacggccatc	240
ccttaggcga	gcctgccgag	gtcaggggga	cgccgttcga	tttcctcacg	cctccggcat	300
aggggatcgg	atcgacagtg	cgatggatca	gctcatttgg	gcaagggata	cgatcatacc	360
tttatcgtgg	acaagccgtc	gggggcatat	ggttttgcgg	ccgttgcgta	tcgccaaga	420
ccggaatcgt	attggatgtc	tttccaccga	accgggtatg	caggtgtaca	cgggcaactg	480
gatgagcggg	agctgagggg	gaagtccgat	cggcgttatc	cggtcgcgtc	ggccgtttgt	540
tcgagacgca	gcactatccc	gattcgccga	acaaaccgaa	ttatcctaga	ccctcttgcg	600
cccgggcgaa	gtgttcgagt	cccggacggc	gttccgatcg	gtatcgtcga	gtgatcttct	660
cacaaggatt	ttgtatcaaa	ccaatctaaa	caagcagaaa	ttatggaatt	agacttcgta	720
aggagtagat	tcatcagcac	tttgacggat	ctacgggtca	gatcttcact	tctcccgggc	780
gcataatctg	atcggcgaac	acacggacta	caacggcggg	ttcgtcttcc	ccgtgctata	840
gacaagggcg	tcatggccga	aataaaaaccg	aatgggttcgg	acaggtaagg	gcatattcga	900
tcgacctcaa	ggactatgtg	gagttcgggc	tgggcccggac	gatgctcccc	gtaccacttg	960
ggcaaaagtat	atctatggcg	ttgtcgcgag	atgatagccc	gaggcgtaga	ggtaaaggga	1020
ttcaatacgc	cttctccggg	gatattccgc	tcggagccgg	catgtcctct	tcggcagctt	1080
ggaaaag						1086

(2) INFORMATION FOR SEQ ID NO:556

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 480 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...480

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:556

gaagaggaag	ctttcgatct	gggacataaa	gctgtgagag	aacgtttcgc	tctttcgtgg	60
aagatgccaa	acgattaggg	cgagccatcc	gcatcggatc	aatcatggct	ctctgtccga	120
acgtatgctt	acgcgctatg	gcgatacgct	gaaggcatgg	tacaaagctg	catggaatac	180
ctcgatgtat	gccacgacat	gagttcgacg	atgtggatgat	ctcgatgaaa	gcatcgaata	240
ctttgtcatg	acagcagctg	tacgccttct	tgtggaacga	atggatgctg	cagaatgcac	300

tatccgcttc acatcgggtgt caccgaggct ggcgatgggtg aggcgggcgg atcaagagtg	360
ctgtcggcat aggttcgctt ttggctgatg gcttggcgat accattcgtg tttcactgag	420
tgaggatccg gagcatgaga tccggtagcc cgcaaattgc ttgcctatat agagaaacgt	
480	

(2) INFORMATION FOR SEQ ID NO:557

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 773 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...773

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:557

gtaggcaggg gaattttggc ccgatccggc acgggcacgg caccggcatt tgtctgaacg	60
cttgttttag ctgctataga cgagctgaaa agaggagttt ggttcaagga ggattgtcgc	120
gtatggatgt atcgcggagc ttgggcaagt gggaaataga ctacatagag atggccgtcc	180
cgatgagtcc ggacgactcc gcttcaaacg aaacagcatc ctcaagcatc agtcgcaa	240
ggagtcgccc ccttccttgg cgatgacgaa cggctcttct ggacagagggc ggaaatcgga	300
acagacaaac ggccaccctg tacgaaaaac tcggccttggc ctctatgaag ccatagaggc	360
attcgtacag tataggcctg tcgaatagag aacgggtataa atacaataag agaggcttcc	420
ttcacttgtc cattcgggac gagaagggaag cctctttatt ttggtaccga cctttgccaa	480
cggcaggcgg gtttatctcc gggcgagctg atgatcgatg aagatcagat tctgctccta	540
gagagacgga tcgtttcgac gatttcggca gcagtggctt cctcttctcc tgctcgcgga	600
tatacttcca gaagaagtc tgtgatgccca tatctccgct tcggaagcag cccttacgac	660
agcctcgatc atttcgggtca ctttgcctcg tgttcgtaca cctggttgaa tacctccaat	720
acagagcccg aactttgggg cacggcatcg atagcttcta tcttcacctc gcc	773

(2) INFORMATION FOR SEQ ID NO:558

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 751 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...751

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:558

cagcctgacg	gatactactt	acgaattaca	aatcccttct	actttgaatg	gcacagaagc	60
accacttgaa	tctggaattt	cgtcttattt	ccgagcctag	cgtgctcacg	gacatttcaa	120
ttacgctgtg	tttgtggatg	gccatcgatc	ggtagcggaa	tcggcatgaa	taagaaagaa	180
gctcatcaga	atgctgacat	gatgccctgg	aaaagttaga	gcgtgcgcgc	gattaccgac	240
aaaaaagaaa	tcgtcatcat	cttcggagcc	ggaataaaga	ctcgactctt	gcaccaataa	300
cttgtgctgc	attttcttat	tgtattttca	gaaaaagaag	caacccaatg	acactccact	360
ttgtgtcggt	gggggttggt	ctttagaagt	aatgatcaga	ttatttctta	gctgctttgt	420
tgagcttgcg	cttttggatc	tgtaggcaag	gggtgtagca	acaaagagcg	tagagtatgt	480
accgataacg	taccgagcag	gatcgagaac	gtgaaactac	gcacgcgtagc	acctccaaaa	540
tgaagattac	caacataacg	ataaacgtag	tcaaagacgt	atttaatgtc	gacccaatgt	600
tgaattaagg	gcacgttgta	tcacctgata	gcgatcttgt	tgggggtacaa	tttcatcgtc	660
tctcggatac	gggtcaaatc	aaccacgtgt	cattgagcga	gtaaccgatg	atagccagaa	720
tagcagcgat	gaagtctgat	cgatctccat	g			751

(2) INFORMATION FOR SEQ ID NO:559

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 664 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...664

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:559

cagcagttcc	cggtagtaga	aaccatcacc	agcataatgc	tcagccgaaa	accagcatct	60
tgcgcactta	cccaatactt	gacaagcttg	gctccttcag	tctgggtgta	accaaatagt	120
tatccggagt	taaaacgcca	atcatcgtaa	gtacgaaggg	gatgcaatac	acttctcact	180
gtcatgtcca	tacatatcca	aggataatag	tcccaattaa	cattgtcgcc	atcagcatca	240
atcaaaacca	gccttcagga	atacttccgg	cctcaaagcc	ttcatataag	ataagtccga	300
ttgagaatca	taaatcagct	tatcgcaaac	cgattgggac	tcgtattgtc	gttataaacg	360
gcagtgcac	aatattccac	ttccacctga	tctctcgtga	agaataagtc	tcacgatgat	420
actccaaaac	agtcgggtct	ttatgtgaac	aaggagcgag	ccgtttgcat	agatattgta	480
gccggcaagc	gcaatgggtc	tttatcatca	gtcttatcgg	gttcgtaagc	cgtaggata	540
ttccacttta	atcgctccct	gttggtttca	ataagcgaga	caacgaaacg	gtaacagggt	600
cgggctctga	tgcaggagtc	ccgaatccag	gtgatattgc	caacttcaag	aaatattata	660
tcgg						664

(2) INFORMATION FOR SEQ ID NO:560

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 567 base pairs
(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...567

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:560

ccccgtaaag	cagtgatcgc	atcggaatca	gccaaagaaag	tattggctgg	aacctgagac	60
aacgcgctca	caaaaatcgct	cagatcaaga	aagaggctaa	gaaaaagctg	catcaatgca	120
gggcatcagc	ctgacgatca	aggccaaaca	agcagcacgg	gcacaatctt	cggatcggta	180
acgaatatcc	agatcgagaa	gagctggcga	aaaaaggcgt	ggaagtggat	cgtaagatca	240
tcgtctcaag	cctgccgtta	aggaagtggg	caactatacg	gctgtagtgc	gcctcacaag	300
gaagttactg	tagaaattcc	cttcgaagta	gtttctgaaa	atgaactatc	atagaagcaa	360
agccggaaga	agctcctgtt	cccgtagcgg	aaagccgacc	gctgagacag	aacaagcaga	420
agttgctgct	tgaataagca	cctgagattg	ttccttttta	gcctgtcctc	caatgcttgg	480
atggacatgg	taaaggaata	acagctttgt	cagcattcag	aataaaacga	tatgagaagt	540
ggaccaaaaac	gcatagtttt	ggctcac				567

(2) INFORMATION FOR SEQ ID NO:561

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 433 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...433

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:561

gcctttgctc	tacggccaat	aataatgtgg	gcgaagaagc	ctacgacgac	aaaaaaagac	60
cgatcatcaa	gcttttgctg	ctgatcgaat	tcgtgaatcg	gggatggcca	gtacccaaaac	120
gccaacgagc	aatatgatgg	ctcccaatat	tttccgattc	cttcattgt	gagtatgttc	180
gttttatttg	ttttcgtttt	atctctgcaa	ataaaaacaat	aatctgccga	atacagaaat	240
tattgacgaa	agattcatta	cttttgctcg	taatcaatac	gaaaaagatg	aatatatcgg	300
acgctttctt	tttctcatct	atttctgcct	gatcggcgcc	cctttttcct	cctgctcact	360
atattgacag	cactgactac	cactgtaggc	tgatgctggg	gaggcaagta	agaatattca	420
agttaattaa	tcc					433

(2) INFORMATION FOR SEQ ID NO:562

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1846 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1846

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:562

tgggtggcaa	cccatttgtg	attgagtttg	tccacgacga	tgtctgtcac	gtcaccttgt	60
ccagcacata	gtacaaattg	ggttcttctc	ctccgaccgc	cgaacagcga	taggggtaga	120
agtcgaggac	aatactccgg	ctgcatttag	acgccgaaaa	tgcttatatc	cgatcccatc	180
cagacagagc	cgttatatcg	acggccattg	catagatagt	cttatgtcct	atggctgccc	240
cgagggattg	acaaactgct	cgacgtaaag	atggctgtcg	tccgaagtcg	tttcggtgta	300
ccccgatcgt	tgaagatcaa	gacacctttg	cgcgtggatc	cgcactacgg	tgaaggatat	360
ttaccatttt	gtctccgttg	ggtaggataa	tctattgccg	aaggaggcca	gattggctac	420
atccggatag	ctgaaagaat	gcatgtgcta	ctctgccgat	cgtacatgaa	gatgttcttg	480
cctacggcac	gagcgtcccc	cagaggttgc	ccttattgtc	aaaggcaatc	gctttcacag	540
ggcatctccg	ggattacatt	ctgcgatagc	agtttcgttt	cccgaatacg	agctatcgct	600
ttgccatcct	tgaattcgaa	cagaccgttt	ccccatgacc	gacaaaaaag	tgatcggggt	660
ctccgttgga	aacagctata	tcgatacatc	attgaaactg	aatccgccgc	ccaactgttc	720
ctgtacggtc	ttctttcgaa	gtagtgccat	cggttgccgt	cgtatagctt	caccataccg	780
gcattcccat	caggtttggt	ccccagagtc	cgctggctgc	atacagacgt	ccggactaaa	840
ccgcatctcg	tagaaatcat	tgtcccccg	tccgtcgaat	gcacaggcat	ggcttcggcc	900
gtacttccct	ctgcgagaag	aagtgaagcc	aaccttcttc	tcccaatgct	atgtatgccg	960
tattgctttc	gttcatggca	cgacaccaag	gacgtcggct	ataggaaatt	gtgtcgtttt	1020
gcgacctttt	ctatgaaata	aattcgattc	tccgcacaga	tgaacagacc	acgatccgca	1080
catacagtcg	tgaatcggcg	gaggaagaga	gcaatagctc	cggctcaacg	attggtttgc	1140
agcgacatat	acacggccat	cggcgagcag	gaaacaatgt	cttccccgac	aatgcccaga	1200
ccggtgaccg	agccccatcg	caaatcaaag	acaaggctgt	ccatgcggcc	ggatccttgc	1260
ggttatcggg	ctctttccga	tgaagagctg	cccttctttc	agcatcagca	agcgatcatt	1320
gtcaacttag	ccacatcggt	caccttagtt	cccttgccgt	aggtagccgg	tagcgagctt	1380
cggcgacatc	cagaacggag	aggccgaatc	ctcctgccaa	aaagccctgt	tgcttacgat	1440
caaaaggcga	ttgagcggtt	tgtctatcag	tcgatattgt	ctttcaatgc	aggtagcttg	1500
gtcacacggc	ctgcttcgtc	aagatgtcga	tattgcctga	tgcatagtat	atgaccaagg	1560
atttttagtgc	tcggagtagg	ctatgctgct	taccgatgta	tcgctgagtc	cgctgatcgg	1620
tcgaagatct	ttgcctcatg	gggagcttct	ttgcccaccg	agtaaatact	ccgttggtta	1680
cggcaaagac	tttcttgggc	gtttctacgg	cttttccgtc	ttgtggatag	ccaagagggt	1740
attccaaata	ccttcctctt	gagctggaga	gaaaaagagg	tgaacaataa	gcagacgaca	1800
agagcctgca	agagctgaat	cttattttgc	acataataaa	aaatcg		1846

(2) INFORMATION FOR SEQ ID NO:563

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 730 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...730

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:563

aaagcgtaacc	gtttcagcac	cgccgaacca	cacggcaatc	tgccgacgcc	atcgccctgc	60
tttacatccg	ccgttttcaa	aacgtttctc	gcatgtgttc	gtgccgactt	ctccgggttc	120
cgctcggtat	caagccgtat	ttccgctcag	ctcatcggtt	gatccgtttg	ctgctgttg	180
cttcgaactt	gtaaggagct	ttttcccgta	gctgtccaca	cgcagggaga	cgatatggat	240
atgctgcgcg	cgatgtcgtt	gtgcttgaat	acgatgtaag	gctgtttgcc	gtatccatct	300
tttccatgta	ttcccgggcg	atgtcctgta	actgtccgtt	tgtagcctgt	cgctccggatg	360
cggattgagg	gaacagtga	acaccgtctt	ttcgtgcgga	tacccgacgg	gatgcgcata	420
tccatatcgg	tcaatgctcg	tcaaagtctg	tttctccgtt	tgcattccacg	ctcatcgagg	480
aggtcagaat	acggaggcgt	ttcccgcgtt	tactttggaa	aagttatatc	ccaacactta	540
cccattgctt	tccgagcggt	tatctcggca	accatcgttc	ttcgaaagta	ctgtgagccc	600
ggttcgttct	tccagaagcg	caaggagtgc	tccgggtgatt	gctccagctt	tgcagcaaaa	660
cggccgcccgt	tttgacggaa	tgggtactgta	atggagcgga	cggcctgatg	tagagcacgc	720
caaccttgcg						730

(2) INFORMATION FOR SEQ ID NO:564

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 364 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...364

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:564

cggctcgggg	atattgacga	aataaagcac	tacaaaagcg	agtgcaaaat	acacatggcc	60
aggatgatag	cgggataagc	ctgcttgata	ttggcctgtg	aacgttgctc	ccgataaagt	120
aaccacagag	cacgggtacc	agagtcgc	cagcgaattg	aaagagccac	ccacctggat	180
aagctgggta	ccgcgggtgc	tccgccaccc	aaggtattga	gcacgcggat	gactaccgta	240
ttgagataca	catggagaaa	ccggcaacaa	atgcgccgac	caaataaata	gagagctacc	300
catctcttcg	gacaagagct	gtattcctat	gcctacaaat	ccgcagcgat	ggcggaataa	360

(2) INFORMATION FOR SEQ ID NO:565

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 485 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...485

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:565

```

gccattcgctc atctgggatg taagagcggg gtaatgatta cagcttcgcc aatcctaagg      60
aatacaacgg ctataaggct tattgggaag acggggcaag attatagctc cacacgatcg      120
taatatcatt gccgaggtca atagaatcgc tccgttgatg agatcaaatt cgaagccaag      180
cccagagctga ttcggagata ggtgagaata tcgattcggc tttcattgct gaagtcaagg      240
cactgggtctt tctcccgaaa gcattgcccg tcatcgggat atgaagatcg tataacgcct      300
atccacggta cgggaagtac ggtggtaccc cgtgccttac gtgatatggg ttgccaata      360
tcattcacgt acccgaacag gatgttgtaa gcgagacttc cctacggtac attctccaa      420
tcccgaagag cctgcagctc tgccatggct atagccaaag cggaagaaac aggtgccgat      480
ttggt                                           485

```

(2) INFORMATION FOR SEQ ID NO:566

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1011 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1011

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:566

```

gggattttca ttgaactctt ttgctgcaga gcagattctt agtgtcttcg gaaagggtcaa      60
acctccggtat tatgggcacc gagcaaataa aaatttcaca agtttccatc agagaagtat      120

```

tcctttcctc	gtcaaataca	tgcttgtccg	ataggcgaga	aataaggaat	gattgtcggc	180
tgtttcttgc	tccctgatga	tgcaggacgc	gattgtcagc	tgattcttgc	ttcctgcacg	240
atgcagacgc	gattgtcaac	tgattcttgc	ttcctgcacg	atgcaggacg	cgatgtcaac	300
tgattcttgc	ttcctgcacg	atgcaggacg	cgattgtcaa	ctgttcttgc	ttcctgcacg	360
atgcaggacg	cgattgtcaa	ctgattcttg	ctcctgcacg	atgcaggacg	cgattgtcgg	420
ctgttcttgc	cttccctgcac	gtgcaggacg	cgattgtcaa	ctgattcttg	cttccctgcac	480
gatgcaggac	cgattgtcaa	ctgattcttg	ctcctgcac	gatgcaggac	gcgattgtcg	540
ctgattcttg	ctcctgcac	gatgcaggac	gcgattgtca	actgattctg	cttccctgcac	600
gatgcaggac	gcgattgtca	gctgattctt	gcttccctac	gatgcaggac	gcgattgtca	660
gctgattctt	gcttccctgca	caatgcggac	gcgattgtca	gctgattctt	gcttccctgca	720
caatgcagga	cgcgatgtca	gctgattctt	gcttccctgca	cgatgcagga	cgcgattgtc	780
aactattctt	gctccctgca	cgatgcagga	cgcgattgtc	agctgattct	gctccatcaa	840
tgcgctaact	atcagctggt	tgcaactatt	ttataggact	ttattgaagt	cttttgccgc	900
agagctgatt	cttaagtgtt	tttcagatta	ctgaggtttg	cagagagatc	gcatgaagct	960
ctcctttctt	cgtcaaataca	tgcttgtgtc	tgtcttgatc	gatatgaagg	g	1011

(2) INFORMATION FOR SEQ ID NO:567

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 730 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...730

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:567

cgcacaantt	ttcagcttaa	atgtttcttt	cagatagatg	atctcgccgt	ggtcaagaga	60
tgatcaggcc	ccaaactgga	acccgaaagt	gtatagatcg	gaccttaccg	ttagtgcagg	120
taggagtaag	atcggcatag	gtgccggagc	acccagttta	gcctgaagcg	tcacgcggcc	180
caccctgtg	aggtagcttc	atcgggatac	tctatcgaaa	gataaactgt	ctgggtcggg	240
ttctggaacc	attggttata	gaaaactctc	gtacgatggt	ctccccaatc	tgctgttcac	300
ttgcggcgca	ggctgtttga	tcgtcaggtt	cgatagttt	accaatagga	gtttgattcc	360
ttgctatcac	tatgatcgcc	gatagtcacc	gtacctgtgc	tttgaagaca	aaaccggtt	420
cggcagcatt	aatggcattg	cccatgcggt	acagacagct	ctcctcttaa	tcgtcagctt	480
aacgatgggt	caagctctac	cacattgttt	ccatccgccg	attttaccgt	aaatacaggt	540
cgttcggatt	agaaacattg	gtttccgcca	ccgtcactgc	attgcccttg	taacacttac	600
gacagccgtt	ccgaccacat	actcgacacc	gncggcagtt	tcacattaac	tttgatacca	660
ttcgaatcct	nctggactac	agtnaatcaa	tgatcaatgg	ctcttctnca	gaacatacac	720
caatggacna						730

(2) INFORMATION FOR SEQ ID NO:568

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2087 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...2087

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:568

ggcctttctt	gtcgagcaaa	gccaccgata	tgccggtagc	ctccagtttg	atgccagctc	60
cacctttccg	gtcagttcgg	ctttctccac	tttcagacac	tggttcgcc	cacggcctcg	120
gagagggtgc	gcttcacctc	ctgattcccc	ttcggagacg	ggcattggct	gcattgaggg	180
agtcgatctg	cacgactacg	acttcagtat	ggcacgaagg	gtcttgacct	ctcctctcag	240
ctcgttatcc	tgcgtgcatt	ggtcgtcttg	actgttttca	attcgtcctg	caatgattga	300
cgcggggcacg	ctcggnggag	agttgtgcca	gaagggaatc	gttgccaat	ggatattcat	360
ttctcccgta	gagccggaga	gcttggtgta	ctctgcgtat	agtcctcgga	tatacgatcc	420
agttcatcct	gcatggcctc	ctttcgagct	tggaagggtt	ctcgcgatcc	tgttccagag	480
cagcacgttc	cgaaccacac	gccaattgaa	gaaaaccctt	atgaatacaa	taagaacgat	540
acggcaaccc	ccatcaggac	gagcctcttc	ttcgatactt	ccatcgttcc	ttgctattac	600
cttaataata	tgtattgctt	tatcgaacct	gccgaacaat	cgtccggact	gccaacgata	660
gaccaacggg	tcgggtgaaa	gaaaaatgcc	gcaagcgggt	tctcctcctc	tgccaagggtc	720
tctgtcacgg	tttggggatg	gagagtgtat	ccgactcttc	cgagagcgac	acctgcatat	780
aagaggcgct	agacttgcat	atatggcctg	ataggcatac	gactgcctgt	ccgatggggg	840
aggaaaaaat	cctctatccg	aggttgctgc	caaaagcggt	cgtcttgagc	ggcttccatt	900
cgggtggtgta	gaaatcgatc	cggctatccg	cacgggggtc	aagacgggtg	tgaccacgca	960
gatgacggag	ctgctatccg	aaagggcagg	atgcgcataa	acacctctcc	gacggtagctg	1020
gtctgaatct	gataaagtgc	cgattgagga	gaaacgtaac	ggtagctccc	agagaagatc	1080
cagagatgcc	gtatgggtaa	agccggagag	atggcctgcc	ctccggccaa	atcgttccgc	1140
tcctccatgg	ttacgatcgg	caggacggat	tcgggctggc	caagaagcaa	cgctccagtt	1200
cgcctgccac	aatctcctgc	gaccagcagg	caacacactg	ccgaatatac	atcctgaaaa	1260
aatggcgagg	gccaactcag	cgacttggtc	gtccgaccga	taaattcctt	cttcattatg	1320
cttcaaagat	aatcggacac	gcaaaaagca	gcaaatagca	cccgaatcgg	cccaaggact	1380
acaaaccgga	ggatccatcg	ccctcggccg	actccgtgcc	gtggcagtga	gatctttctt	1440
cttggtcaga	tagggattgt	ccaccgccac	ttgatcaaag	aagaggcttc	gcgcagatgc	1500
ctgttctgta	tgaactgaac	ttcgcgccct	tgatcgctcg	ggcattgacc	tcttcgggat	1560
gtcccataac	cgcgcggggg	cataaagccg	aaaagtcctg	atctgtccga	gcctgacgta	1620
ttgccctctg	tcaactcgcg	cttgaggtaa	taggccagtc	gatccaggca	ttgcgcacat	1680
cgcgggtcgt	gagcgaactc	atctcggcaa	cgtcctgata	acctcttcaa	agtcaatcac	1740
tttcgatttc	tgagcctcgg	catatacatc	gttttgcttg	catgcttgcc	tactttcatt	1800
cggcgttcct	tcattgtgtac	tgtatcattt	gtttctgtct	acttccatga	aaacttccga	1860
aggcctcctg	accggctcat	caggctccaa	atatagacat	tataaacagg	actcccataa	1920
gagtatagta	tcctctcata	tgagaccata	gtatcctctc	tgtgagacca	tagtatcctc	1980
tcattgtgaga	ccatagtatc	ctctcataga	gaccatagta	tcctctcata	ggagaccata	2040
gtatcctctc	atatgagaca	tagtattctc	tcattatgaga	ccatagtt		2087

(2) INFORMATION FOR SEQ ID NO:569

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1008 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1008

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:569

tagaggatcc	ccgcgactat	gtttcttttcg	gtttggcggt	agaagatggc	gtttgacaaa	60
cgccggattg	ctttttgccg	accaatgtcc	gttacctgca	gcagagtctt	ctgtacacgc	120
tggaatgggt	tgcaaagagg	atcagtgatg	aagatgacgac	ggatgatgca	gaatacagtg	180
gcaatctgat	atacttttaa	aaagtgccac	tgagttttatt	cgcagaaata	cccgcacagg	240
atggataaaa	cagctaattg	aagagtggag	aaacccgact	atgccgaacg	tgctattttg	300
agggagtggg	gaacgctctt	atccatagga	catatgattt	tcgggggactg	aagttcatgt	360
gaaaatgtat	gacgaccgtt	tagttatctc	attcccgggg	gaatctatgg	agggggagaa	420
ttggagccca	tgagcgacgg	ccttatattt	ctaaaaggcg	taatccgata	ttagctgaca	480
ttttcagccg	ctaagggtata	tggagcgctg	gggaagcggg	ataaagaaaa	tctttgaaga	540
acgaagaatc	tttatggcta	tacggaagaa	aaaaagccgt	ttttcctttg	aataaacaga	600
atgacttctt	cctgacgatt	ccgaacgtta	attatcgtct	gagtctgtta	ccacacatga	660
caccatacat	gacaccatac	atgacacata	catgacacca	tacatgataa	aatcgccctg	720
ttactttcct	tctgtaaacg	cctcgcagca	gagaagagat	gatggagttt	gtgggtttta	780
gaaacgcgat	cattttcaga	agaaatacct	ccgtccttta	ttagaacagg	aaagatcgaa	840
atgaccattc	ctgaaaagcc	ccaaagtaag	aaccagaagt	atgaacgaag	gaggtagtca	900
aataacatat	ccatttctta	atataagcgt	taacaaattg	agtttttata	agaaatatct	960
tcctgtgggt	atgaaaagagg	ggtgactcat	tgtctggatt	ctttcgtg		1008

(2) INFORMATION FOR SEQ ID NO:570

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1181 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1181

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:570

ggccaaatca	tccactatta	gcggataact	gccggaaggc	tgtgccgggt	aaagcgggaag	60
tgaaatgccg	aacgatcccc	ctcgtctatc	tccacgcgtc	tactttctcc	aactgtttga	120
tccggctctg	tacctgtacg	gacttcgggc	cttgatctcg	aatcgttcga	tgaagtccctc	180
cgtatcgcg	atcatctctg	ctgattctcg	taggcacgca	tctgctgtcg	cagccgctct	240
tcgcgagctc	cacatagtgg	ctgtagttag	tcttgtagtc	gtatatatgt	cccattctat	300
ttcgatagt	cgtgtcgtgg	tattgtcgat	gaatgccctg	tcggtcgacac	caggataacg	360

gctcctgcat	tggtggcgat	gaactgctcc	agcagccgat	ggattcgatg	tcgagggtgat	420
tggtcggtc	gtcgagcagc	aaacttcggg	gcgttggagc	agaagtttgg	ccagctctat	480
ccgcatacgc	atcctccgct	gaaatcggct	gtggggcggt	ggaagtcctc	tcggccgaac	540
ccagaccgat	caatgtctgt	tcgatcgagc	catgatagtt	gccctgctca	tgagagagag	600
ggtctcgctc	atattcgat	aatgctctat	cagtcgggat	agtcatccga	ttcgtagtcc	660
gtacgtccgg	ccatttcac	ggacagcgcc	gtatctcttc	ctctatttgg	cgaatatcgt	720
tgaaagcctg	ctcgactctt	cgtaaaccgt	gtgtccgctc	tgcaaacgca	tcacctgcgg	780
cagaagccta	tgcggatccc	cttggggcgt	gctatgtgtc	cggatgtcgg	ttctccatgc	840
cggcaatcag	cttgagcagc	gtactcttgc	cggcaccgtt	ctccctacaa	gagcgatacg	900
gtcgcgcctg	ttgatgacga	atgatacctg	acgaagagca	gacgggtgcc	gaaatcgaca	960
gtcagggttat	tgacggagat	atgacttcgt	gctcattcgt	ttgatgatgt	tgtacgcctt	1020
gtagagccct	attcgctgc	ccgactcaga	tcggcgatgc	cttctttggc	ctttccgccg	1080
aaagcaacag	caggccgcga	ttgaaatagg	catcggcaaa	ctccggaagg	ctttgatggc	1140
acggtcgtag	tccgacaggg	cagcatccgt	atcgcccgtc	t		1181

(2) INFORMATION FOR SEQ ID NO:571

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 768 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...768

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:571

atccccggcc	gtacacggct	ctaatacgggt	accccccttat	gcctatgtac	ctcatatctg	60
tggaacacaga	aagcattcaa	agcggatgtg	atgatgcatt	cggcacgcat	ggcagccttg	120
agtttatccc	gggcaagcag	atcgcacctc	ttctgaggat	tggaacagacc	gcctcgtcaa	180
tgacctgcct	catataccta	ctataccatc	gccaatatcg	gtgaaggaat	gacgcgcaag	240
cgcagagcta	tgccggtagc	gtatcttata	tggtcctctc	ttcatcgaa	acgcatgag	300
gggtcaagta	agcgagttcc	tcagcttgac	ggataaatac	ctgagcagga	caacgatgat	360
aaagccctgt	ctctccgcat	caaggctttg	gcgtgaagaa	cggctaccat	cgggatctga	420
aactcgactc	catccttgac	aaccttatac	acgtgagcaa	atcatctctc	tttccgactt	480
tgccgaagaa	ttgctgtcag	caagatcccc	ggtgggtatgt	acaagacagg	cgttatgttc	540
cgggaagaaa	gatccgctct	tccgtgaagc	atattgctac	agatcctatg	cttatgcttt	600
ggccgctatc	gaccgtcagc	gtggacgcta	cacacagagc	agcaagatag	cgaacgattc	660
tttaccaacc	actatcgctc	tcttgcgaa	cactggtaga	gcgttacctt	ggacgcnagg	720
cggtagatgt	gaatgagcat	tgactacgct	gggtgtactg	tccagcga		768

(2) INFORMATION FOR SEQ ID NO:572

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 419 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...419

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:572

cggggcaacc	tgctcaatac	agtgcctgaa	atctgtactc	ggaagtccgg	aaagtacaca	60
tcgctactcc	ctctccccgn	ncgatggttt	aggctccaaa	attgccggct	ttacagccat	120
gaaagagtgg	cgtgtgattt	tttacgtttg	gttcgggagg	taaaaatttt	acgcgccaaa	180
gcgaaaaaat	tctcgcccg	tttctctgga	tttacagacc	acaatccgag	ctttttcggg	240
tcgtatttat	cgaagtggca	gattttaccg	cattaagatc	agagatgcca	gttcatctaa	300
gcgcaaatag	ggaagtggg	tctggatcga	actgacgact	aacataccac	aaggagcata	360
gcggtattcc	ngtagaacgt	cagttcgacg	ttagaaaaca	ccaatgaatt	tgttttttg	419

(2) INFORMATION FOR SEQ ID NO:573

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 825 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...825

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:573

agacttgttc	ggtaccacca	gatccatcat	cgatccccat	taccttccca	aaccttcgca	60
agtagggcat	gccccgatag	gattgttgaa	gctgaacact	ccggactcgg	ctcctgaaag	120
gtacgccccat	cggcttcgaa	cacattgtga	acatccgttc	ctccaccgtt	ccttcggggc	180
tttcgatgcg	cagcagcacg	ccccgtttcc	ttcgaaaaaa	gctgtctcgg	ccgaatccgc	240
aagaccgact	catagtccgc	cttgtcctct	gcaatcacca	gccgatcgat	aagcgggaagc	300
aggaggccgt	atcgagaaaa	tcagtttcgg	cggataaaat	gtctcgatcc	gcttcatctc	360
cccggcaacg	aaaatgcgcg	tatagccctg	ctctgttgga	tctgcaagtg	ctcacgcaga	420
ctacgtcctt	gaggggcttg	cgccctacca	gaagatacag	tttgagccg	atgggccgat	480
cggcaacgta	gcgaccagat	cggccaccgt	atgtttcttc	acctcctctc	cgcttgctga	540
gagatgggtc	tgcctacgcg	agcaaagagc	aggcgcaggt	actcgtattc	tcggtcgatg	600
tggtacgggt	actcctcgga	ttgcggctta	ctacgcgtgc	tcgatggcaa	tggcaggagg	660
cacaccggcg	atcaagtgcg	actcngcttg	cgcatncttc	ccagaaactg	acgcgcatag	720
gcagacaggc	tctcccgtaa	cgtctctggc	cttncgcata	gagcgtatcg	aaagccaaag	780
aactttgccc	gaaccggata	gtccgggtcac	cacgaccagc	ttgcc		825

(2) INFORMATION FOR SEQ ID NO:574

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1760 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1760

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:574

gaacagaact	tctgcacccc	tacactgccg	tatccggcta	taaaacccat	cggtcacgtt	60
gcactcgaga	ccggaatgtg	catccaatgg	gtgtgaattc	ttacgacctc	ggtatggatc	120
gaattggcta	tttttggggg	tgtcaaagaa	agcatcaagc	agatgaaacg	gaagactctc	180
aacctcggcg	gcaggctttc	agcctggaaa	agcccgctcg	aatgggcatt	atgaatatca	240
ccccattctt	ttttactccg	gcagccgcct	ctcgagcgtg	gacagtgtgc	ggagcgggca	300
cgcgaaatcg	tcgaagaagg	aggggccttg	atcgacgtcg	gtgttattcc	tcacgtccta	360
atgcggatca	catatcggca	caggaggaaa	tgagcgactg	cgcccggcac	tgaaggtatt	420
gcgggatgag	ttttcggaca	tccggtatcg	gtggatacct	tccgtgccga	tgtggcgaag	480
atgtgcgtag	agagtacggg	gtagcccatc	gtcaacgata	tttccggcgg	acagctcgag	540
gcgatatgtt	ccgcacgggtg	gcggctttgc	aagtgcccta	tatcctgagc	acatgcgcgg	600
cacaccggct	acgatgcaga	gcctcaccga	ctacgaaaca	ttgcggtaga	tatactggat	660
tacttcgtgg	agcgtgtcgg	agagctcgcg	gattgggtct	gcacgacatt	atcctcgatc	720
cgggttatgg	tttcacaaga	cgtcggagca	gaattacgaa	ttgctatcgc	ggcaggagga	780
ggcttcggcg	agctggagct	tcccatcctg	gtcgggatct	cgcgcaagag	tatatctaca	840
aactattcgg	caccactccg	gaggaggctc	tcaacgggtac	caggcactga	atatgtacag	900
tgtcatgcat	ggggcggaca	ttcttcgggt	gacgatgtgc	gggaagcggg	ggaagtatgc	960
cgtatagccg	acaaactcgg	gtcgtcaagt	aagggaacg	cctctctatc	ggaaacagaa	1020
attctcactc	acaaaaaaac	atctcaatct	catgtttctc	cagtttacca	tcaaggatta	1080
atagacatcc	tgtcgtggc	tttattcatc	tatgccgttt	ataccacttc	aagcactcgg	1140
gcagcaaggc	tcttttctcg	gggattctca	ccttctcgtc	atgttgatca	tcgtatcgca	1200
gatattccag	ctgcgtctga	tgggaccatc	ctcaatcagt	tcgtcagctt	ggggttcttc	1260
gtactgggtca	ttcttttcag	ggagagctgc	gcaagatgct	cacggcgata	ggctctacgc	1320
gccatggcgt	tcgtcgaagc	gtcttctcaa	taaggaaaag	cgcgaacagg	attgcaggac	1380
gaacgccgta	tcatagctcc	gtcatgctt	gcctgtatga	aatggctcgc	aagaagaccg	1440
gcgctctcat	cgccatccag	cagggaatag	cctcactccg	tttgcccata	cgggcgaagt	1500
gttccgcgcc	gaagtaaatc	ccgtctgggtc	gaaaacattt	tcttcaaaaa	cagtccgctg	1560
cacgacgggc	catgggtgatt	gcggacaata	gcattcattgc	agccggctgt	atcctgcggg	1620
cgcatacaat	acggatctga	acaaggattt	gggattgcgc	caccgactgc	tctgggtctc	1680
tcgcaggaga	cggatgccaa	gatcattatt	atcaggaaga	gagagggcgg	atttcgttcg	1740
cctaccgtgg	ggagattcat					1760

(2) INFORMATION FOR SEQ ID NO:575

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 648 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...648
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:575

aaagcttcac	cactacaggg	attctgatgg	ctttgatcag	agagctgata	tatccacata	60
catctgttcg	gctttgttgg	catcgaagaa	gagatcggat	tgagtcgcat	cacgttgatt	120
tcgagagcgt	cggctccggc	ttcttcgact	gcttggcaaa	gtccaccac	gaatcggagc	180
ggaagcagtt	gatgctgcta	ttacggggat	agccacctcg	cgcttcactt	cgcggaggaa	240
gtcagagtgt	tggagatctc	gttgctctgt	acataggcat	tgatatagtc	tgcccctcag	300
gataatccat	cggggacatc	atttgggaca	tttctgcctc	gattgctctt	cgaacagtga	360
tttcagtacg	atggcagcaa	caccgcgtgc	ttgagatctt	tgatggtttt	gaggttgcgg	420
gtcagtcccc	aacttgctgc	acaataggat	ttttcaggcg	caagccggcg	aactcagtg	480
acaaatcgat	atatctgttt	attatgaatt	acgaaaaaga	ccctgcaagc	cttccccgac	540
actctcggcc	atctctgttt	aagacagacg	aaaaaacgcc	ctcgacaaaa	ggcttcccag	600
tgccctccggc	acatatatgc	gagatgcggg	ctacacaaa	g	gtctattc	648

(2) INFORMATION FOR SEQ ID NO:576

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1043 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1043
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:576

ctaaaaattt	tcaaacgcga	tcgccctgac	aggctacccc	cggggctcgag	cattaaattg	60
gttttgccgc	ttcattcgag	cgagtttctc	ctcattggat	tgttggctgc	tactgtgtac	120
cgacggtagc	cggatagatt	attggagcgg	aggaggatc	ggctcgtatg	gacgtaattg	180
gaatcagacg	gcacaggtgg	cacacaaggt	gcatacacgg	ggagcaaggc	gatgattgga	240
ggagccaagt	gctgttgacg	gtcatgtcgt	tggatgtctc	aaaggggtac	tcataaagag	300
aagtagattt	ccaccgttgg	aaaaagaatt	ttccattggt	ggaagtttat	tttccaccgg	360
tggaaagcta	tctttccact	tgtggaaatc	cgcgtgtacc	aaatagtcgc	ctgacacaca	420
ataagaagaa	taaacaaaag	tcctgcttat	tgtgcaaaag	tcccattaat	tcgtacttgt	480
ttgataaccg	gcgtagcaat	cgttagatct	ataagtgtgt	aa'cggttcaa	atgcgaattgc	540

ctgtggaatt	attacattct	ttgtgcacaa	ggttacattg	ccagtgcaat	attcgatcaa	600
aaaagggggg	ggggaatcgg	gcacctgtga	ggcaaaaaaa	atacgggaca	ccaataacaa	660
tatcggcaga	cttctctaag	aattgatatt	tcagtgtctg	ccgacacaaa	aacgctgaaa	720
tttactaaca	aacagttatc	tcaagccatt	gatgtccaac	aaaaaattct	ttccgatctg	780
catgaaaaca	tccactcaaa	gccatcattt	catatattat	tatactatta	cagttaccca	840
ctcataaagt	gacataatac	ttttacaata	agtgcaatta	tcaactatat	cataaaacat	900
ccccaaaaca	gatagataaa	gagagacgaa	agttcaatca	attttcatcg	gacacgaatg	960
gctccctaca	caaatgtgct	tacctcttcc	ggattcttaa	agcagggagt	attagtgtcc	1020
tttttgcgag	aaaggagatc	aac				1043

(2) INFORMATION FOR SEQ ID NO:577

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 604 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...604

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:577

ggatccccgg	gattggttct	tcctcttctt	ccggtggaga	cacggcgcct	ccgagacact	60
gaggttggcg	aaagagaaag	ccttgggatcg	gcttttggat	agaagcagtc	gatgccgagg	120
ccacccgatt	ggaaagggga	ttcgacacga	aagaggagct	tccgatgagg	acagtctcgt	180
tgccgggtatc	attggcccat	tgacccaaag	ctgccaaccg	ctgccaactg	cgtatgtgac	240
cgtaagctcg	tgaatggctt	tgttcccagc	gggtatgcgc	taccatcgat	gagatatcgg	300
atcggacgat	gctgctctcg	cctgaaggga	gaacgcggag	tcgacatcca	gcagatccac	360
cccttttcgag	cgcgtacccc	agcgaagagc	taatagtcga	actcggagtc	gctgatctct	420
ccataacagt	acaggtagca	aagagatagt	tgttgatggg	cgggcggaag	tccagcttga	480
catcgccctt	catgtttag	tcttgaagta	cgggacgggtg	atagctatgc	gcgattcgtc	540
aagtcgtcgg	gatattccac	gtagagcttg	agttgttttt	tgatgatgca	aagtcctgcat	600
ctgt						604

(2) INFORMATION FOR SEQ ID NO:578

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 472 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...472

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:578

```
attctgaaca agaaagggtac atttgccggc tttgaagaca catacaagcc atgttcatga      60
actacgagcc agggcggttac acaccggttag aggaaaaaaaa aatgggtcgta tgatcgtcac      120
cgtagccaaa aagtatgagg gagatataaa gatttcgttg attggaaaaa ccaacgcggt      180
ctccgtaccg aggtgaagtg gcagaagata ttgcttctcc cgttacagct aatgctattc      240
agcaatcggt aagcaagaat acgagaaaaga aggtaatgat ttgacctatg ttctttgatt      300
ggcgatcaca aagatatctc tgccncaatt actccgggga tcgatccgac caggtatatg      360
gacaaatant angtaatgac cactacaacg aatcttcacg ggtcgtttct catgttnagag      420
ctnagaggat ctganaacnc aatcgatcgg actattcact atgagcgcaa ta      472
```

(2) INFORMATION FOR SEQ ID NO:579

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 452 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...452

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:579

```
ttttggagcg tgacgtgtac ttgaaaagca ttgtgccgag taacgctaca cttcggtcga      60
ggagttgcat agagtagcaa tagtggggag agagacgcat ttccacgcat tcgtttcttc      120
ttgcgttaaa tgtccgtaaa tgtcagaaga gagtggtgtg atgggagcag aaacgggtgt      180
ttccgggtctc ctgcatgctg caacgagcag gaaacagcct acaatcattc cttaaattctc      240
tgcgttgctg ccgccacggc cgaatgggtg gttcagtgat cgagatagat gaaaacaggt      300
ttcttacggc caatcggacg gtggatgaaa agggattcat gcaaaagcca atcggcccgt      360
cccctatcgg catgaaaaaa gacccttgca caaaagtaca gggtctcgtc aatatatatt      420
cggaaaattc cgtttcgggt ctaatggatt gg      452
```

(2) INFORMATION FOR SEQ ID NO:580

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 758 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...758

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:580

ctntagagga	tccccgggaa	aaagattcgc	tttaagcggg	aaatgctttc	gacttttcgc	60
attttgtaaa	caaattcttc	ttcttgccaa	cgactgatca	caaggaggac	ttaaggggtt	120
ctcctcaacg	ggacgtttta	ttttcctcaa	acacggatag	atagtttcct	gttcgatacc	180
gagtttatct	gtctggtaag	agaaaaaaag	tgtgcatagc	agtcgtcagc	ggctccattc	240
gtcctacatc	tctctgtcgg	taatgaaagc	caagactatc	cttcgtgaag	tctaaaaatc	300
cccaaattga	tcaaagcaag	atggttctct	tgagtttcga	tatgaggagt	tcgatgtacc	360
ccttgagcag	ggatataagg	acttcccata	ggagaacaat	tgcgcatcag	tcgtcaaggg	420
acagaagcca	tcctccatat	atgagaaaaa	aaggcggttcg	gtccaccttc	ttcagtaccg	480
ttactttctg	gaatcattgc	cggaggatct	gcgaaaagggc	atttacacgg	atggacacga	540
ttggcctctc	atggtgtgtt	tcactcttct	ttctccaaaag	agcaccttcc	gaatctcgtc	600
agaagctcgc	ttctctgtgg	gatggtaccg	atgtctgggt	tttcggatgc	cacgtatgat	660
gcccgttggc	gatgcggaaa	tagccgagcc	ggttacttgt	acaattcttc	gctcaatccg	720
acttgatatc	ccggtgctac	aatcatctct	cggctcgg			758

(2) INFORMATION FOR SEQ ID NO:581

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 4538 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...4538

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:581

agtccttcga	ggctttcggc	tttgacgcag	gcattggcaa	aaccggagct	ccggggaagc	60
cacatcccc	acagttggct	tgaggagta	cctctgcacc	agtccgatgc	gtgggtcttc	120
cttgacctcg	aacttctttg	cggccaaaac	aaaaccagt	caccgatggc	accgattgcg	180
gccaaaacaa	tcacagagta	agtatcatat	ttgtttgtta	ctgattattt	tttcgaatag	240
taaatccaaa	cgtcggctca	gtttgccgtt	gaataaccgg	agaatcaggt	agtaactccc	300
aaagctccca	aagaaataag	cgtactcatg	ccctcgtcca	accagaata	ctgatggtga	360
ggacaagcat	aagcagcaac	aaaatcaaag	ggcaatgaaa	gagaggatga	cagcaagacg	420
tcccatggca	ctatgacctt	cagcaaaaac	cgatcacctt	cgcggatgtc	aggtgcgggt	480
cccattacgg	gatatatcga	tctttgcagt	ctgtagagga	gcaatagccg	gcggcatgaa	540
accggcgcat	gcacttttct	gctgcacaca	taccgttatc	ttgtcggctc	cactcggctg	600
acaactccgc	tatgactgat	aatctcgccc	attttaatag	ttaggcaaat	gtggttgtct	660
ttttgtttga	ttgtctaagg	caaacactct	aatgatgcgg	caaaaaataca	caaactctgc	720

taacccgact	aacaagtagc	ccaaaaacac	attaattctc	cccaaaaatg	gggattctgc	780
gcttcttttc	gaggagtgtg	aacgggtcgt	tgtcgggaagt	tgtcgggtgga	gaaaaacggc	840
acgaagatct	cagtcgaaac	ttctatgaat	caaaagtagcc	gttgggggatg	taaaaatttg	900
gcaatgagca	caaaaacaata	tgttcgccaa	tattgtctcc	atttcggatc	gttcgggaga	960
atgaatgtat	atacgtaatg	ctacggcgtt	tcctcgtcct	ccgaatcgtc	ggctttcagg	1020
agggatagct	gctccgtgct	tcagccaatc	ggcgggaagcc	ctctatgtcg	tttttcgcgt	1080
acttgctctt	tccttgtcga	ggacacgccg	gtacatgtgg	atcgcacggg	gcggttgcc	1140
gtcttttcaa	agcattgagc	aaggagcagg	caggcccgt	gttgccgcta	tcgtattcta	1200
tggcatagcg	cagatgggat	atggcgtttc	cgttcgcct	tgttcattgg	cgcatcgacc	1260
gagcatcgta	tgcaatcggg	gagtcgtcc	gtttcgggtc	gatcagatcg	agcaacttct	1320
gcaccgcttt	tccgcttctt	cccacagctt	ttggcgatag	gcacacatgc	ccagtagtat	1380
ttggtcagg	agttttgttg	gaaggcggat	tcgtcggctc	gctgaagcat	tcctcggcta	1440
cggccacct	accggttttg	tagtacgcca	accgcaatag	aagagatcct	tgaatgaggt	1500
ggggaaatgg	cctcgaccgt	aatccgctca	tagtcatgca	gggcactatc	cgcttcctgt	1560
agcatcatat	ggattcggca	tgggccagaa	gtacggccac	gttcagcgag	tcagtttcag	1620
atagcgtgct	gtcacctggt	cctgccggcg	cgtttcttct	acctgtcgt	cagggtagcc	1680
agatcaatca	gggtaaggaa	atcggtagaa	tcccagagcat	ctgctcttcc	aacagtgtca	1740
tcgcttgaga	aggttgttgt	cgttgttgag	tgcttttgcc	ctaaggcgaa	tgacgggagg	1800
gagcgaatcc	tgcgtaagat	cctgtctgtg	atgaccaatg	ccgtggaatc	ctgtccgatg	1860
tgacgagcag	tttgcccaag	tcgtaccctg	tcggaatatc	ggacgtgcgc	tatagccttg	1920
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cgataagcta	ccgcatcggt	aggatccatc	gtacgatcct	ttggtagacg	gcaaaggctt	2040
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gcattcggct	caattcttct	gtggctctggg	cagttaagga	taggaggtct	gagcaataac	2220
aatgcggcag	agcaggaggc	gtttcatcgg	gttttgtatt	tgaatacaaa	tatatacgat	2280
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cttttgtgcc	gagacgtgta	ctgaaagaga	gtcggcactc	ggaaagggtcc	ggtttgtgac	2400
tattacaatg	tctgttcgac	gttggaatag	aaaggtttaag	atctcggaca	caagatcatg	2460
accatcctga	tcctgtttca	tctctcaaaa	cgccaaaatg	gaaagctttt	tatcttcaat	2520
atatcacctg	ctcaggctcg	cccaagttcc	acatcttgtc	tcttataatc	gctttgtgga	2580
gctacaaaac	agtatagctt	caagcaaata	gcattctctca	atagggtgtg	tttaggtcaa	2640
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caatgatgta	aaagaactcg	attaccctct	ttttgattga	gttttgatta	gtttttacta	2760
caatcctatt	ttaacgggat	aataatagtc	ttaatagatt	gtttttcgat	ttgtatataa	2820
tatatataatg	aaatatataa	actccgtggc	agagtccttt	gtcacagttc	ggcaatgggtg	2880
attttatgca	tactgcaggc	ttgcaataag	ttgcaataag	aaattttgtt	cgcgagattc	2940
atgctgcagg	cttgcatgaa	ggaaattttg	atacaaaaatt	cttagccgcg	gcttgccggcg	3000
agtaagtttg	ccaacaaaa	cgctattttc	cgcttgacag	agtgattttt	tatgcaaaa	3060
cgctattttca	cgcttgcaaa	aggcaatttg	ttcgcaagat	tgtacattgc	tgataggatt	3120
ctatgaattt	tgttcggaga	ttctatgctg	caggcttgca	gcaagggaatt	ttgcatacaa	3180
aattctagcc	gcaggcttgc	ggcgagtaag	tttgccaaca	aaatcgctat	tttcgcttgc	3240
aatgagtgat	tttttatgca	aaatcgccat	ttcacgcctg	caaaagcaat	tttgttcgca	3300
agattgtaca	ttgcagatag	gattctatga	atttgttcgc	gagattctat	gctgcaggct	3360
tgacagcaagt	gattttgtat	aaaaattctt	tgccgcaggc	ttgcggcaag	gaatttctct	3420
cgcaagattg	cattacgcgc	ttgcagcgag	ggatctatcg	cgggagattg	cctgtggcca	3480
acgcagacca	ttgttgatct	ccataaagga	catgcagcct	gcaaatgtgt	gaagagcttg	3540
tgaacacctt	gctatgctgt	ctgcctgaaa	ctctgctaaa	gttccttaat	cgaagcatgg	3600
agggtaacag	acggatgact	tgggcgaaa	acctatattt	atttgtaaa	ctccaggtaa	3660
gcttattttat	ccaaacaact	ccgataaaac	cgaaggagag	gcactggaaa	gagcctctcc	3720
cttttcataa	acaacctaaa	aaacgttttag	cacgctattg	ggcacgacac	tccttttttcg	3780
tttatctttg	tccgtaagaa	aaaaattcag	tcaaaagcat	tcaaaagcata	tccataatga	3840
ttttattctt	tcaccattcg	tcnngctctg	tttatgccgt	ggagagtga	gttcagttca	3900
gcgaagaaga	aatacatcgg	tgggtatggct	gtttggggga	gccgaaccct	gtcagtcgga	3960
tgttgtaaa	gctatcacgt	aggccctcgt	cgggagatgg	taacaccttg	gagtaccacg	4020
ccgtcgagat	aacgcagaat	atgaacgttg	caggcatacg	ccgtatcaag	agttctttcc	4080
ggtgaaaggt	gccgatgcag	agttcgatcc	catgctcaag	ctctctatga	gcagctggac	4140
caaaagattt	tcgatattga	tcgtagcctg	agccgatcat	ttccgtcaag	gacattcgcg	4200
cttataatga	agctagggat	tggctctggat	cgaagatgaa	atcagttatc	tgaaggcggt	4260
gtcgaacgca	ttggcaggcc	cctcacggac	aggcgagttg	ttcgatttct	caagggtta	4320
tccgaacact	ggccggcaca	agatatccgg	cggcacgttt	atattgatgg	agaaggagaa	4380
ggaaagctct	ctcttcaacc	tgatcaaacg	acctctgctg	tcaatcccaa	tttgcttgtg	4440

tccgcataca aggacaatgg gctttcattc caaggccgaa ggtagagcaa tttgcccccg	4500
cagtgcagca aaccggacta cttcgaaacc aaaacgat	4538

(2) INFORMATION FOR SEQ ID NO:582

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 460 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...460

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:582

taaccggccg agcgaaaccc tcgtgcccgg tggtcgcgat cgagctgaac gatgtatagg	60
tcatattgga tcttgtggcc gaacagtgga tgactataat ttgatggat tcatgtttt	120
ggatgttgat agatgaaaaa attaaaccat tatagaaaga caaaggccgg agacaaaagc	180
aaatttcctt gtctccgcct tccgattaga ttcccgtccc tgctcgaata caggaggaat	240
acggacagaa ttagagaccg ccgcctccgc tgccttgctc accgccgcc tcggagaatc	300
aggaaacagag ggagtaccac cttgctgttc tccgggacga agctattgat ccctttcaga	360
cgaatttgcc gacaggcgcg gcgaatatcc cccggggcag aaagagcacc cgtgctcggc	420
ggatattttc cacggtaaat ctctccttct ttggcggcct	460

(2) INFORMATION FOR SEQ ID NO:583

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 499 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...499

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:583

gggattgagg acttcatatt ggcctttaag agggaaaaga tatgttgccg cggtaacgtc	60
gttgagcgtc tcaaaggggc actcattaaa ggggagtaat ttccaccggt ggaaaaccgg	120

tgtgtaccaa	atagtcgcct	gacacagaat	aaaaagaatg	aacaaaagtg	cctgcttatt	180
gtgcaaaagt	cccgaataa	gaagaaagag	gctaaggata	cagtataaag	atacagtata	240
aatttcaaa	gaaataaccc	tggggttaca	tcagatttga	gtagggagat	attgtatggt	300
tagtcgggga	gaacaagctt	tcgtttcgct	gtgatcatat	ctattttaatg	cgatagatag	360
cggatatgtg	catgccgctt	tcaacggcct	tacgaacaaa	tccattttct	ctggcgtgta	420
cttctcgcat	atcaatcgta	agcatgcacg	cactcctcat	gatctgctac	acgaatgact	480
tgccccttga	tattagcac					499

(2) INFORMATION FOR SEQ ID NO:584

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1623 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1623

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:584

tcatttcctt	ttcggttgga	ggacatccaa	gaggcatatc	gacattcatg	ccatgttcaa	60
gacnatacgt	ttccattggc	acctgacaga	ggatcaggat	ggcgtatcga	aatcaagaaa	120
taccacacgac	tgacgaagtg	gggtctaaag	gacggaaggg	gacggtacgc	agtactccgg	180
tttctacacg	caggagaagt	acgggatatt	gtacaatacg	catcggatcg	tttcattacg	240
gtgatcccgga	gatacgaagt	cccggacatg	ccatggctgc	cctcgctgct	tatcgcagtt	300
ggcttgcttc	ccacgcgaat	tcaagccncc	gattatctgg	ggatggagca	ggatgtttat	360
tgtgccggta	aggacagcgt	cttcggtttt	attctgatgt	tatcgacgag	gtagcacccc	420
ttttccccgg	cacatacttc	ctatcggagg	ggacgaatgc	cctaaagatc	gatggaaggc	480
ttgttcgctt	gtcagaagcg	tatgcgtgac	aatgggttga	aagacgaaca	cgagctgcaa	540
gttatttcat	caaacaagct	gaaaagggtc	tacaaaagca	cggcaagaac	tgatcggttg	600
ggatgaaatc	ctcgaaggcg	ggcttgcacc	ttctgccccg	ttatgagctg	gcgtggagag	660
gatggtggca	tcgcagcggc	taatataatc	acgatgtgat	catgactccg	ggtagcggag	720
gtctctactt	ggatcttata	aggagatcc	gaccgtcgag	cctgttgcca	tcggagggtta	780
tgctcattgg	agcaagtgtg	tgcttacaat	cctttgccga	aagaattgcc	ggcgataagc	840
atcgctacgt	gctcggagca	caggccaatc	tgtgggcaga	atcctctata	cttcggaacg	900
atacgactat	caggcctatc	caaggctact	gctgtggcag	agcttacctg	gacaccgttg	960
gccaaagaaag	attttgccga	ttctgtcgcc	gtttggataa	tgcttgcggt	cgtctggaca	1020
tgcatgggtac	aattaccaca	ttccgctgcc	cgaacaaccg	ggtaggctct	ccgactttta	1080
gccttttacgg	acaaggctaa	gctgaccttc	acgacatcgc	gtccgataaa	atgggtctata	1140
cgctggacga	aaccgaaccg	accctcacat	cgactcttac	acggctccctc	ttgaatttgc	1200
acaaacgggc	cttctgaaga	ttcgtccgtc	acggccgggtg	ggaagatgag	tcccgtacgc	1260
cgcattcgtg	tggaaaaaaa	cccttcaata	tgtcaatgga	agtaccggca	ccgaaacccg	1320
gacgaccatt	cgtacggctt	acggtgactt	atatgatgtg	cctgatctgc	agaggtagcc	1380
tcatgggaag	tagggaccgt	tagctctttg	gaggaaatca	tcacgggaaa	gagaagataa	1440
cttctcctga	agtactggag	cgcagagttg	agaggctacc	ggttatgtgc	ttattccgga	1500
ggatggggta	tatgagttcc	tcggaaaaca	aacgaagttt	tggaattgata	atgggaaagc	1560
ttgatcgaaa	tgtgggcgaa	gttaagaaat	tctcccgtct	gcaatagcag	tcgttccttt	1620
cag						1623

(2) INFORMATION FOR SEQ ID NO:585

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 488 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...488

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:585

gagctttttg	atttaccacg	tttctagagg	atccccgcgc	gtgggagtag	aacagcgcgc	60
gcgggagatt	ctcaccgctc	tgcattctgga	cgatctgcct	gcaccacgga	caatctctcc	120
ggtggggagc	ttaagcgtat	cgctctgcag	gtacgctcat	cggcaatccg	gaactgctgt	180
ttctggacga	accgacaatc	acctcgatct	ggacgtgatc	gaatggctgg	agggctacct	240
ctcgctcagc	agatcggaat	gcttctgggc	acccacgacc	gctactttct	ggatgcgtat	300
gcaaccgcat	actggagctg	gacaacaaac	agctgtatgc	ctaaaaggca	actacgaata	360
ctacctgaac	aaacgggaag	agcggctgga	agcaccgaac	gcgaaacaag	ccgcgcagcc	420
aacctcctgc	gccgcgaagc	gaatggatgc	atcgagacc	gcaggcacgc	ggcacgaaag	480
cgaaagag						488

(2) INFORMATION FOR SEQ ID NO:586

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 542 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...542

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:586

ccgacaatcg	taccttcaag	gccaaactga	tcggtagcga	tgccacgacg	acatagcctt	60
gctgaaagta	gatgccaaag	ggctgccgac	aattccttcg	gcgactctga	caagcttcgt	120
gtgggagagt	gggtattggc	cgtaggcatc	cttttaatct	tacttccacg	gtaacggccg	180
gcattcgctcag	cgcaaaggctc	gctccactca	tcagggtggcc	agaggcggtt	cgctccagat	240
agaatttttta	ttcagacgga	tgctgccgtc	aattcaggca	acagcggcgg	tgctgtggtga	300

atgatcgtgg	cgaactgatc	ggtatcaata	cgatgatcta	cagcaaacgg	gcaactatgc	360
cggctactca	tttgccgnac	ctatttccat	agggcgaaag	tggtagccga	catcaagcag	420
tacggaaccg	tacagcgcgc	ctgctgggca	ttgccggcgg	agatatatcg	gacgaagcac	480
gtcaaagaat	cgatctgaag	tgcgcaaggg	tgctctcgta	gcagactttg	ccgaagtcat	540
gc						542

(2) INFORMATION FOR SEQ ID NO:587

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 786 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...786

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:587

ggatgatacg	atcgccggcc	gcccattccct	ttatcccggc	cagtacaata	tcaagagaaa	60
aattttcagt	cttttcattg	ctctaaattc	tttattatat	tagttgtgta	taacaaagaa	120
cctatatgaa	tctgaaaaga	atctgaatga	caaaagattt	tgaaaaaatt	ttttccgacc	180
ggctgatcga	gcacttctta	tgcttccttg	ccgatggaaa	aagtgtgttt	cccattctcg	240
aagcgtaagt	cagtcggagt	ccgtacagct	ggcatataga	gcgtgcaatg	ggaaccccaa	300
gccggaagaa	tgagcctgtt	tcatatcgtg	atagaaacgt	tcgatatcaa	ggtctcgtcc	360
aaagcgttct	tcacccccgt	attcgctatg	ctcaatgcat	agaggtaaga	tcgatatgga	420
tctctccatc	tctttcaaga	atgtgcaaga	gtatgccgtt	cttaagcagg	ttgcttagca	480
agactttggc	aaagtcgggt	tcattgatat	aaccattggg	tcacttctgc	tccatacaag	540
cgaatacgtc	gattggcgaa	aatcgcttca	tactcctccg	ccaaattagc	aatagctcat	600
tcacatctat	gctttcctcc	tcagggaatt	gatggtttcg	attttgctat	agaggaggag	660
ggttttattg	agctgtacaa	tatgggtgatg	gactgtatag	ccttataaat	ctgttcgagc	720
tgctgtcatt	caaagaggga	tcttgcaagta	gcatttccag	tttattgcgg	cttatggcca	780
gaggggt						786

(2) INFORMATION FOR SEQ ID NO:588

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 908 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...908

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:588

```
cggctgattg cgtacttcgc cgaattcgtc ttggccggtc atgacgcgaa aatggcttgg      60
atcttaatgt ccacatcgct attggtcgga gtgaagtaca ttcttccttt acgtagtagg      120
ctttgacttc tgccgagggg atgtcgcatc tgccaccttg aagagctccg cattcttggt      180
cgtactcggg tggtaaagat gccaaacctg tccagaaact cttggaactt gatcttgtac      240
tggtcgtaga ggcttcgaat ccatccagat attcgtacac gtcgaggctg ttggattgat      300
gagtcggaat atcgtgctga agagattctt gcgacacca atcgccgggg aggataatag      360
agtaccgcat tggactcttc catcaggctt accgtcggtg cacgactcgc ctccaggggg      420
cgttgtcggg cttctgtgtc aacgtctgtt gaattcctga gcacgattgg atagagtagt      480
cgtttggtcc cctcgggtatt gcgcgggtgt cgaccttgc gcggagagcg gttgttcgtt      540
tttcttgccg aacggacgag atactgaccg tcgctgcaag gatcgctcta tgactgcttt      600
gaatactttc ataaacacta ttagttcaca attacttaat ggccggaatc ttacgttcga      660
taccatccgg accgctgca attactctgt tacgtagaaa cgcttgccct tggccagatt      720
ctgtatttgt cgttttgtct ctcagagaat gaagctccgt cgaaaacttc gggaatcgag      780
ttgccatcga atcatagaat acgagttgga acttcaccac tgtgtagttt actccagcaa      840
atcatcgtca agagcggctt taatgccgcc tgctgccagg attcacgctt acccaaacgg      900
caccttga                                     908
```

(2) INFORMATION FOR SEQ ID NO:589

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 432 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...432

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:589

```
cagcaaatat aacacttgga gtgtaggaac tcaatctcac cctgagcatt cgtagataaa      60
tacgtatttg tattttgcta gactcgaggt gcttgagcat agtttgatga cttgcatata      120
ctcctcatgg agctctagat tgtgtattca gtacgaataa aatcgtgagg aaaagatgcg      180
tcttgatact tcggattttg agtaaagagg agtatacata cggatcctta cctatgagga      240
tctgcacata gttccctctc tctctagaaa ggcagatagt tcctttatca caaggccata      300
cctgggacat cccaatatcc cgtggctatt cgaactcgat tgaccaatcc aatctaaaac      360
attgtttcag acaggaactc atagaaagtt cggcgaagaa ttatcaatta agggattgcg      420
taatagcata gt                                     432
```

(2) INFORMATION FOR SEQ ID NO:590

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1146 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1146

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:590

aagaaggcat	gctttcggga	agtaactgtc	catgataccc	acactgtcga	cttatccata	60
gccgatacca	agcgggtgcc	tgtatccttg	atggcgcgag	gtggcgcgga	gcaatatagc	120
cggccacacc	gatgatggca	aagttgtcat	tgtcctgttc	ctcattatat	ctgatcagaa	180
acatcctgat	ccggacaagg	taaggagtaa	aggcgaaaac	catctctttt	cccctctgga	240
ttgtccttc	ctccgaaggg	aatcaaacgg	caagtacacg	tcagtaaattg	atcatgaaaa	300
actttcgaaa	aaaaagatgc	atcgcttcgg	taaataatgc	tactttgctc	ccactatcga	360
taccacaat	ggggctgacc	ggctttgaca	gctgatgaag	cggtatgtaa	gcatgtagtg	420
cgtgggtggc	ttgcactata	actcagacat	caaaagttaa	attggcgaaa	ataactacgc	480
tctcgctgcg	aatcgaagaa	tagtagatta	gacgcttcac	cgccgccaaa	gtggcagcgc	540
gagacatcgc	ccgagcagct	ttttcccgaa	gtagctcgat	ggtgcggtct	gacaaatcgg	600
gaaccgctac	aggatgcttc	ctgcctgtgg	tcagatcaac	ggaagataag	gatcgtgcat	660
tgggtcgttt	cagcctccgc	tcgctccgaa	aattccaact	gaaactaaac	atgtagaaag	720
catattgatt	ccatgttggga	cgagggttca	attccctcca	gctccaccat	ccgatcgggt	780
acagcaggct	gagcgcttat	ctgtaccgga	tcgttttttg	tggtatgtgc	caaagaaagc	840
cactttgttt	gttccatttt	aataatctat	ctttgcagcc	gcaatacaat	agcgaacgca	900
aataataaat	tcaaaagaat	ggcaacaaaa	acagattgca	acgacatggg	cgcaaagggt	960
atgcctttta	taagatcggt	tcgcagacag	caggcgccca	cgagatggca	agtttattga	1020
aaggatcggg	catacaatcc	gaacacgaat	cctgctacaa	tagatttgaa	tttcgagccg	1080
ctttgtattg	gatcgggtga	ggcgcacagc	ctaccgacac	ggcacgtata	ttttgtccc	1140
tgaggg						1146

(2) INFORMATION FOR SEQ ID NO:591

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 629 basepairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...629

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:591

ccaaagatcc	ggggctgcat	cgtaccctct	tgggcgatgg	tttggcctga	tggtagcagg	60
tctgctggga	ggacctcccg	tgactactta	ttcgggaagaa	ccggagccat	ggccctaact	120
cgtgtgacgg	atccgatggg	gattcgttag	cagccgtaac	gggaattgtt	ttctcagctg	180
taggtaagggt	cagtgcctgc	tcaaattccat	ccctnctgcc	gttctcgggtg	gtatcatgct	240
gtccattcg	gtacgatagc	ttcggccggc	attgccaatc	tggtcaatca	taaattggata	300
tgagtcggac	acgtaatat	attatagtgt	ccatcactct	tacctcggt	tcggcggagc	360
agtcgtttcg	ttcgggtggat	ttacgatggc	cgtatcgggt	tggtgccat	agtaggggta	420
gtactcaatc	tgatcttgcc	caagagcagg	agtaagttat	tatccgaccg	atcttgtcaa	480
tgtcttgtct	tcctcttcat	tcctatctgt	cagcgataga	agtgcacttg	catgcattgg	540
ctttgttcgc	tatctgctgc	atcgtggagg	acaccattgt	cactctccat	gtgtttccac	600
tgctgacacg	gtgggtggagg	aaaagacac				629

(2) INFORMATION FOR SEQ ID NO:592

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1249 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1249

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:592

gggatgatca	ttctcggtg	ggcctttttt	tcttgccgga	aagcacctgc	tatacggtat	60
tgcaggggga	gatattccat	acctattatc	atatcaaaat	aagggagagg	cagatcattc	120
gcagcagtg	gatagcgtat	tcagagcttc	aatcattccc	ttaatccgtt	cgacagtacc	180
agtatcattg	ccggagggaat	cggaaatcttc	cggtcaggac	tgacagtatg	ttccgccggg	240
tatttgtcgg	gcgcaggaga	ttgcagccgt	ttccggcggc	tcttacgata	ttactgctct	300
ccgctgatca	atgcttgggg	tttcggtttc	gaacataaaag	aggcgtgact	gcacagttga	360
tcgacagcat	cagggccttt	gtcggttacc	gggggtacga	ttggatggcg	agacggttgt	420
taaggatgat	ccgcgcacta	cctgaacacc	tcttccatcg	ccaaaggata	tgtctcggat	480
ctggtggggc	agccttggct	gctcatggga	tcggggacta	tatggtagag	atcgttggaa	540
ggttgctttc	aatggcctca	atcctcaagg	caagccttgg	cgcatagggt	aagtaaaccg	600
caggatgaca	gtctgggctt	ggcgatgcag	gagttcgact	cgtcgtagag	cttagtggga	660
aaggggggctt	ggcgacatcg	ggcaacaccg	gaatttctat	gttcgggatg	ggaagaagta	720
tgacatacag	atcgaccgct	tagcggctat	cctgtgcaga	cggatgtgct	gagtgccaca	780
gtcatgctcc	cgattgtatg	acggctgatg	ccttggctac	tacttttatg	gtgtcggttc	840
ggagcgtgtg	cctgctattg	ccgccgaatt	ccccgggtgtg	gatatatgct	tattttgtcc	900
gatggagacg	gttcttataa	gactgtgatg	acgaaggctt	ccggaaacga	gtagccaagt	960
aatcgagcct	cgtctgtaat	ctccaagcct	ctgtcttttt	ctcttcggat	cggtagacaac	1020
ttttagaacg	gacgcatact	gtcgtaactg	aacgaaaaaag	atttggcaga	tagttcggaa	1080
gattttccat	acggctaagt	cacaataaaa	aacaagagag	ggtatgcccg	cgatgggcat	1140
accctctctc	tattttattgt	tctttactcg	ttaggcatac	cgctgaagcc	catgaaagcc	1200
atagccaata	taccggcagc	caagatgccg	aaggtattcc	cttcatagc		1249

(2) INFORMATION FOR SEQ ID NO:593

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 616 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...616

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:593

gcagagtgat	ttcctcagaa	aagcgaatcg	gacccctggat	gaaacggcaa	gggaaaacta	60
cagttttcgg	cattattccc	tgagatgcgc	caccgattat	ccctccacag	aatccgaaga	120
gcaaagaccg	gagggaaaag	gctgaaagac	tttggagaaa	tacaagcagg	agataaaggg	180
gaggaaagac	aagctcatag	ccaactgctg	tcggcattcg	atatgaatca	gagacaactg	240
ccctccgtct	tctggatgaa	tggatgaata	tcaggcctgc	aagccattca	gtcagcttcg	300
tacttatgtc	aagcagctca	atgaagactg	ccgactacgc	ctgggaagtt	tcggaaggat	360
ggcgatggga	aagctcgtgc	catacctctc	gtgggtgaaat	ggctaccttc	ctctctagga	420
catcgtccgc	atgatcataa	ggaagagacg	aagaagctga	tcacctcgct	tactacaatg	480
agatgcaacg	tctctggcac	aatatgccgg	agagagaatc	gccgcaattc	aggctatcgg	540
gcagaactgc	accttcttga	cccctcttcg	acatccgttc	ctttccgcan	catgagacag	600
ntatcgata	cgagac					616

(2) INFORMATION FOR SEQ ID NO:594

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1658 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1658

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:594

ggcgcgtggt	ttctgaaaat	gtggcgtgag	aatTTTTctg	ttttggagca	aaatTTTTtg	60
cttccacac	gaaaacgaaa	atTTTctcgc	cctacgtttt	cggagcgtac	aataggaaaa	120
gtttggtgtg	acgtgtgacg	tgtcctgaaa	aagctactcc	atcctgatct	gccttTgtgca	180
tatttccctt	accatcctat	atTTTctgta	gtttTgtacc	gcTTcatcaa	ttaaaaacaa	240

caacatatgt	tttccggaat	cgtagaagaa	tatgcccaag	tgacggatct	ccgtacgaaa	300
atgacaatct	gcacatcacg	atgacgtggt	ctttcgtcaa	tgactcaaga	tagaccaaaag	360
catcgcacac	aatggcggtat	gcctcaccgt	agcagcaaga	cggacaccac	ctataccgtg	420
actgccatac	gcgaaaccct	caacgttcca	acctcggact	cctccaaata	ggcgatctcg	480
tcaatctgga	cgaagcatga	tgatgggagg	ccggctcgat	ggacacatcg	tcgagggacc	540
gtagatcaga	cggtctgtatg	taccgctgtg	gaagaagccg	gcggcagtag	tactattcgt	600
tcgaatacaa	gctcgacaag	gagatggctc	gccaaaggat	atgaccgtgg	agaaaggatc	660
cgtatgcgtc	aatggcggtga	gcctgacgta	tgcgactccg	gcatgaacaa	cttcgtgtg	720
gctatcatcc	cctatctcgc	gaccatacga	acttctgccg	cattgtctcg	ggtagtgtgg	780
tcaactggaa	ttcgacattg	tggggaaata	tctcagcaag	atgctccaat	accatgaacc	840
cgaacgactt	ttactccctg	atcgaacagc	gacagagcga	tccaagttcg	atcccagacc	900
ccccgtaccc	gaagacgtgc	ttcagcgcat	ctcgaagcgg	ggcgtctctc	cccctcagcc	960
tgcaattcgc	agccttgagg	tttgctcgtc	tcaccgatcc	cgacactcgc	agacaactgg	1020
ctgaagccta	tcgtcacggg	tattgggtat	gaatcacttc	acgcgtcagg	ctcccgtaac	1080
atcgtattag	tcgaagagaa	agccaacttc	acggcgacca	tcgggggaaa	atgaaaaaaa	1140
tccactatgc	caatatcgac	ctcggcatag	ccgccgacac	atcacgctgg	cagccacagc	1200
cgaaggcttc	ggcagctgca	tcatagctgg	gtaaacgaag	ccaagatccg	cgaataactg	1260
ggcattccct	ccggcgccgc	gtagtcatga	acatcatgct	cggctattcc	gccgatccgc	1320
acaggccaa	aagcgcaaa	aaacctcgga	ggttcttcac	cgcgagaagt	ggaggctctc	1380
tcctccctcc	gccccgaaga	ggtcacatac	atagtatata	gatagctcat	tatgtacgac	1440
attcaaaaaa	tcaggaggga	cttccccatc	tccatacccg	ggtacacggg	aaacctctca	1500
tctatctgga	caatgccgcc	gacacagaaa	cccatagcgg	tattagacca	aatcgaacga	1560
gcctaccgac	attcaatgcc	aatatccacc	gcggcgtaga	ccatctgagt	caagggtgcta	1620
cggagcaaca	cgaaaatgct	cgcaagcgga	tagcccg			1658

(2) INFORMATION FOR SEQ ID NO:595

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 826 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...826

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:595

ccctggacag	gtaccacaca	tgccggagttc	atagaagcct	tgggacgttg	cgcaagaaaag	60
gggctacgag	ctttatcctc	gatctgcgag	aaaatcgggc	ggtttgctgg	agccggctat	120
tgccatggcc	aatgaatttt	tgggtaaaaat	ctccccattc	ttcagatcga	aggcaaagcg	180
tatccgcgtg	aggagattcg	tccgatgggc	aaaaggatct	ttgcagcaaa	ttcctctggt	240
agtgcggtgg	atgagttctc	ggcaagcagc	agcgaggtag	ttaccggtgc	catgaagacc	300
atgaccgcgc	tcaaatacat	ggtcgcccga	cgttcggcaa	gggctgggtg	aactgccgtt	360
cgatttggca	gatggttctg	ccatccgcct	gacgtagcac	gctattatac	gccatcggga	420
cgctccattc	agaagccgta	tcttccggcg	tagatgaaaa	ttactatcag	gatctgagga	480
atcgcttcaa	cacggagagc	tatactcggc	cgacagcata	ccttcactgg	gaggaaagaa	540
ttcaagacag	ccggtggccg	cgaagtctat	ggtggcggtg	gcatacatcg	gatattttta	600
tcccactgga	tacagccggg	cttaattcct	atatgataaa	gtggaggatt	cggatttgat	660
ccctcgctat	gctttcctgt	acagcgtgcg	aacagggttt	ccttgagtcg	ttttaagaca	720
gtcggaggag	tgggacttat	ctggatcgta	cttatctgat	tttcgacttt	gcttcttttg	780

ccagggtaccg gatcccgatg ccgtactttt tttaatcaac gaagct

826

(2) INFORMATION FOR SEQ ID NO:596

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 916 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...916

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:596

ccaggattgg	caaaggcatt	gcgccaaagg	atgaagcgct	ggggatcatt	gataatcaca	60
tatcccgtag	ccccgggctg	atcgcgcaaa	tatacatcgc	aagagcaacg	acttcgcgga	120
caattacatc	agaaggaaga	ccgaccacac	accatgtcct	tcatatgcc	aatcgtacac	180
atgcctacgc	atttctccgg	catatcggcc	gtgtattcat	tatcgacacg	cttatcagga	240
ttgggttcacg	taaataatct	tgccactcca	tcctgcgaca	atgctcctgg	gtcaatcaaa	300
tacatcttca	taacaacgga	atgaagcagc	tatatecttg	gcccatacaca	aatctgcggt	360
aagaagctgt	agttctcagg	aggcaaagtg	ccgattcatc	gaaaaagcga	gcacgcaagg	420
cctcgaagcg	tgccgtctct	ttcggtccaac	acgcatcttg	atgctccgtc	cgcctttata	480
gcttacatag	tggagctata	ctcaggcgta	tagtcaaatt	cgccccaagg	ataaccggga	540
cctgatcttg	aagaaagagt	gttactgcct	cgatatgctt	gcatgttcaa	gcccattcgt	600
tctaaaatcg	agacaagaac	aataattccg	ttcgctcgaa	caccacggaa	tgcaactcgg	660
tatcggttgc	ggccgtttgc	gaccaataat	cgccccatat	ccgattctca	tccaaatggt	720
caacatcgaa	aggatctgtt	cagcaaattc	tcttcttaat	cctacttgcc	actcttctac	780
ggctctgcctt	ccggacaaaa	ccgattagac	aatttctgtt	ctttcattga	ataaccttct	840
tttactttac	attatatatt	gtctgcagaa	ttcatgtgta	catatcaatc	cggccttttt	900
cgagttcggc	tttcac					916

(2) INFORMATION FOR SEQ ID NO:597

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1666 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...1666

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:597

tttgagtctt	ccaaaaagat	gtttagagaa	gatttaccat	agcgcgaaaa	gttatttttag	60
tttccacttg	agtggattta	cctttcatac	tttattcacc	tttttaataa	aaatcatctg	120
taagaatatt	actatgcaat	ggcaagactt	taccgtcagc	gcgtttgctc	tgcagacgaa	180
gctgtcgtgg	actctctaaa	ccgggaacga	aagttgtatt	cggatcatgct	gctgctgcgc	240
ctgtcgtttc	tctcaggcta	tgtaccgcca	gcgtgaaaag	ttggagaata	tcacgttttc	300
cacatgttgt	atttcggcga	cgcgcgcac	cttgctcccc	aaagcgttcg	catgtacacc	360
cgactctcaa	cttccttgag	ggcaactccc	gtcggcaagc	cgtgaccgtc	gtgtcgattt	420
cattccctgc	cacttccacg	agtaccggaa	ctgtttcgtc	agggattctt	tccattggat	480
gtagccgtag	gcaggatatct	actcctaacg	aagagggtta	ttgtcttttc	ggagtttccg	540
cgactacaca	aaggctgccg	ccgagtgcgc	tccggtagta	gtagccgagt	gaacaagcaa	600
atgccattca	tcgggtggtga	aaacctgatt	cacatctcaa	actgacccat	atcatcgaag	660
tggacgagcc	gattgcagaa	gtattgctcc	tgctatcagc	gaccttgaac	tgaggatagg	720
tcagaattgt	gcctcctgat	caaagacggc	gataccctcc	agttgggtat	cggcgggtatc	780
cccgcgctgt	gttgcgtgca	ttggaaggcg	ataaagatct	cggatttcac	acgaaatgtt	840
taccgacggg	gtgatgcgta	tgattcgcaa	ggggattatc	aagggaagaa	aaaaacattg	900
catcccga	aagtcgttac	ctcgctaata	tcggatcgaa	agaattgtac	gattttgtca	960
ataacaatcc	ggtgatagaa	gctatccggt	ggattatata	aacaaccccg	atgttatcgg	1020
taagaatgac	gcatggtttc	tatcaattcc	tgcttggaga	tggatctcat	ggggcaggag	1080
cttctgagtc	gatcgggtac	gaacagttca	gtggatccgg	aggatcaatcg	atttccttcg	1140
tggggccaag	cgttccaagg	gaggaatctc	cattatgctt	tccccagtac	ggccaagaaa	1200
gggactgaga	gtcgcacatg	tcccatctga	aagagggtgc	ttgtgtcacg	accggccgta	1260
acgaagtgga	ctattggtga	cggaaatatg	cgtagcgcgt	ctgcgtggcg	caacgcttcg	1320
tcacgtgctg	aagccttgac	tgctatagca	catcccga	tccgaccggc	cctgaggagg	1380
aaatccgccg	acgcttcgaa	taagtcggaa	ggattttagg	cttatataaa	cggattcgaa	1440
gccatgtaca	actacattgt	gtacatggct	cgatatgtta	acgtgagttc	aatgtaagcg	1500
atatgggtcc	gattctctct	gatgggatat	tgactataac	cgaatcagaa	aatgaaagga	1560
aaaagtgcg	tctcatcgga	cgtcggagcc	tctcgaagct	gaacctntca	acagcaatga	1620
aatacattgc	aaacagcata	tgcattgttt	cttgatcgga	tcgcat		1666

(2) INFORMATION FOR SEQ ID NO:598

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1559 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1559

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:598

atcctccatg	agttcaacct	caggaagagg	taatccgtgc	tacggctgca	gctgttcgaa	60
gagaagggcg	acagtgtgga	attccaagta	ggtacgatat	cgaagtaccg	cgtgctgccc	120
ttacggcgga	cagaatcgcc	tcttcggcga	gttcttctca	ttcgggacca	acgaccttac	180
gcagatgact	ttcgggtactc	tcgtgacgac	atcgcttcgt	tctctcccat	ctacctcgac	240

aagaaatcct	gaaagtggat	cctttccagg	tactcgacca	gaaagggtga	ggccgctcgt	300
aagaatggct	acgggagaacg	gccgcaaggc	tcgtcccaat	ctgagtgagg	tatctgcggg	360
gagcacgggtg	gtgagccttc	gtctgtgaag	tttgccatag	agtgggattg	aactacgtat	420
cctgctctcc	tttccgtgtg	ctattgcacg	attggcagca	gcacaggccg	ttatcgaaga	480
aggcaataa	aaagaatac	ttagtctctt	cgactcgtat	gaagaggctg	acacctatcg	540
tttattggag	aaagagcaag	tccgattcgt	cgggcttgct	ctttcctttt	tgtccccaat	600
ctcgggttcag	aggcttatcc	tgaacataca	gtcattctct	ttttgggggg	cttgatccga	660
aaaggaaaa	acaaggatcg	ttaataaatt	tattttctac	agttcatcca	gcataaaaa	720
tacaaatatg	tgggggatgg	gaaagaaaa	taccaatcgg	tcgggtattgt	acgaggtgcg	780
attacatagt	cctttgcaat	gatttctcgg	aacaccttta	attgttactc	at ttgaaaaa	840
aaattttctt	tttttctccc	tcgttttagc	agccatcatg	tcttgctgtc	atcttggtgcc	900
aaggatacgc	cggatgcgcc	cgaacagtac	gtatcactat	ccgtgccaaa	ctaccggaag	960
gcagtacgat	agagagtctc	caggatatag	catcgaattc	ctcgatcttc	gtacccaaca	1020
gaaagtggaa	aacagctcga	caaagccggg	gtttgtcttc	ttagtctgga	tgccagtgat	1080
atacgattac	gatacgtggc	gaaatagggg	acaacagtat	cgttgcccca	aggaaaaacta	1140
ttccatcgca	gagaatacta	ccttggaagt	tccactattg	tgacgaagat	ccgcccttcc	1200
ggctctgctgt	tcaaagaagt	at tttcaatg	gagagaccga	caacgggcag	atgatgcacc	1260
cggatcagta	cttctcatat	acaataatag	cgataagggtg	gtctatgccg	atgggtgtcgc	1320
tttgggtcttg	ccgcacatgc	caacgtaaca	ggatgaagacg	ctttcaccga	gggttgacca	1380
agaacaaccg	catcgtcctt	tccatgatct	ataccattcc	cgcaacgggt	cgaggtatcc	1440
catccaaccc	ggatggatcgc	tcgtgatagc	ggaacggcca	tcaatcacca	cgatgccgag	1500
catccgaatt	ccgtggactg	agcggtgccg	at ttgggaagt	ctatgagccg	gatcagccc	1559

(2) INFORMATION FOR SEQ ID NO:599

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1440 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1440

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:599

ttctacccga	tggcagccgg	tatcgtccaa	gaggatagta	ctcgtaccat	gttatggatg	60
ccaaggcgcg	tcaattgggt	tacttgctct	acacatcgcc	tatacagacg	acgtggaagg	120
gtacaacggg	cctactcccg	tagtcatgcc	tttggtccgg	atgaccgcat	cctcggtacg	180
atgctgctgg	agcatgcgag	acaccgagct	ttgcccgtag	agtggagaag	gcggggttat	240
atgaagctgg	aatggcaaga	ccgccgagga	ggcattggcc	gaagaggtcg	atgcgtatcg	300
ggagccacct	atacgtccga	agccgttatc	acttggtgtc	agaacgcttg	gagatatata	360
tcgggtcaaaa	aaaaaacaaa	aaagctgacg	ttgggggatc	gtccgcacag	ggggaacctat	420
cgccgtcatt	ctgatagctt	tgtttgcttt	ttttccccgt	caaaggccaa	accttttcgc	480
ctctatctcc	tgcgcttagt	attgtattcc	tcggttttct	taaagggacg	ttcctctctt	540
ggagggtact	taccattggc	tgagcaccgg	at tttccctt	gcaacacatg	gttgctcatc	600
gggctgtttg	ctttggccgt	attgttgcc	ctgatcagaa	caaaccgttt	tattgccgct	660
gggtatgccc	tttcggagca	gctcagaatt	gatgggaaag	ctatctcgac	ggaaaagtgc	720
tataccgcc	cagtgtataa	gggtactcacc	tcggtaagac	gctatttgct	cctgctcgtc	780
gtcgggtgtt	gatcttcaac	gttgccgggtg	atctctccaa	gtgggagcct	tttccgcttt	840
ttcttttctg	tcggcatcgg	tatgggtgct	tgtcttgccg	ggatgatata	cttggtctct	900

atcttcgttc	agcagccgtg	gtgccgtttc	tttgcccaac	gggacaactg	ctcgaaagcg	960
tcagaaaaatg	ctcgccctcg	atttgcgaca	cagccatcca	aagaactaac	ggattttcct	1020
taccccccttc	ctttctttca	actgaacaaa	tcgatctatt	caaatacaat	gacagatttt	1080
tcgacaacga	acaaccggat	atagagtcac	ctgtgtccga	tctgcttccg	aagccggtaa	1140
tcgcctgccg	gttgatcatc	ctgccatggc	tacacacatc	tcgggggcat	gtatcgaaac	1200
tggtatctcg	attatgcttc	ttacgaattc	tggagcgtgc	cgtgccccat	atagaagatg	1260
gactcaagcc	cgtaaacgcc	gcatacctta	caccatgcac	cattgggttcg	acaatgggtcg	1320
gtagaacaag	gtagcgaagg	tgaccgggac	agactatggc	ttctacaccc	gccggggagat	1380
gcttctatca	acgatgctct	tcgtacagtt	ggggcaaaaa	ggctatttctg	atccgaaacg	
1440						

(2) INFORMATION FOR SEQ ID NO:600

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1969 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1969

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:600

gtacgtcaat	gtcgatcgtc	tttccagtc	aagcagctac	catcaggctc	gtcaatcctg	60
tttcagtttc	tatatacctg	catgcatagc	gaagaagata	ttcgaactat	caattttgtc	120
agaagaagac	gtatatcaa	ctttcgacaa	cttcgtttat	acggttggtc	ggatggaaag	180
cgaagtgaaga	gaatcgcttc	tgatagcaca	gagaggatat	tgagtacaga	taggccgaac	240
cattgactga	tcctgctgga	gagcttctcg	gctaattgccg	tgggatgcct	cgggtgtacc	300
cggggcatac	accctgcatt	gattcgctgg	cacagaatgg	gatctcttta	gccaagcctt	360
cgcaagcagc	tttgaacag	acagaggcac	agagccacgc	tcagtggcta	cccttcgcag	420
ccgaattcat	ccatcatcaa	aacccaata	agggtgcgaa	cctgccgggc	atagctgctt	480
cattgcgcac	gtcggctata	gcacccacca	cctgtacgga	ggagatgctg	actttacaat	540
gtccgtagct	acctatacgg	cactggatat	gacgaggtaa	cggacgttgc	agctttccgt	600
tcaaacgag	gttgagcaaa	tggggtacgc	cggatcaatc	agtttcccac	gcctattgga	660
cgattgtcgg	cgattggaga	aagaaagaaa	ccttacttct	acagcttcct	cacactttcc	720
agccatgaac	cattcatgtc	ccttctcagc	atcatcctga	tccgtatctc	aatagcgtct	780
tctaacggac	agctgctttg	gcgactatat	acgtggatat	cagcagtctc	ctcatggaag	840
aatacactca	tcatagccgt	ttccgatcat	ggttatccct	atctgccgac	caagctatgc	900
ccgatcagcc	cggccgctat	gggattgtga	tctgtgggca	ggaggagcca	tcttacgacc	960
gatncgcttc	gaagaggtag	gncgcantcc	gatttgcctg	ccacgctgct	ggcccaatta	1020
gggcttacta	tgatgaattc	gtattctcca	aagatgtttt	tcggagaaac	agccccattt	1080
cgcttatttc	tccttccccg	gtttagtagg	ctatggcgac	ttctgaagaa	ctaccatcta	1140
cgattttgcc	ggcgacaaga	ttgtctatgg	acacgagccc	cacttgccga	ccaacgcgct	1200
atagcggcca	aagtaatgct	gcaatggtga	tgaaggatat	gctatcgcgt	taatatccta	1260
ctccctttct	atcgaatcgg	agagagttcc	atgtaggaat	ctccatcttg	ggataaacct	1320
tttttcatga	ttggctctat	tcgggtctcg	ctaaccattat	ctcaaaaaccg	aatatctcta	1380
atcataggag	cttatgatcg	aacctcctcg	aatcgccac	tacccaatac	tccgaaagag	1440
gatattatcc	cttctctatt	cacaagatga	atacctgaaa	gacagacttg	ctacggctgt	1500
cttgatctct	tgtaaagggt	cacataaagc	gataaggcac	acctcgttat	acccggttca	1560
ttcacgaacg	acttctctgt	gtctgcgccc	ccgaaaaaacg	tggcgcgtaa	actttttgtt	1620

ttggttcgag	aaataaaaaa	ttctcgcgcc	acaacgaaaa	acttctgttc	cggtttttca	1680
gaaaacacgc	accacaatcg	gagcattttc	ggttctatct	tataccccgc	cctcgccccct	1740
tttctatctt	cagtgcgggt	ttcgaaaatt	cctcggaacg	atggatgcta	tatatccgat	1800
ttcctcgcaa	atagcataaa	aaaatacgta	ttaattacag	cttttagagt	aacttttaggc	1860
cataaatata	ttataagcta	taaccacatg	cgaatagaac	tatccatcaa	gcagacgatt	1920
cattagtctc	tttttctcac	caaccatttg	ctcgtcggca	ttcttcaaa		1969

(2) INFORMATION FOR SEQ ID NO:601

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 484 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...484

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:601

gcgaactcgt	cgcattggga	cgtagccctt	ataccggatt	ctggggcagt	tgcagaaagg	60
agacagaaag	ctcgtggcag	aagccgtaga	acgtgtggaa	tcgctccgct	gatcaatcgc	120
gaactaacta	cgctcagcga	tggagaggac	aaaaagtagt	catcgcaaaa	gccctggcac	180
agcagacacc	gatcatttcc	tcgacgaacc	gacggctttc	ctcgattatc	ccagcaagat	240
ggaacgttgc	acctcttgca	cagcctggcc	catgataccg	gcaggactat	cttctctcca	300
ctcatgatct	ggatgccatt	ttacccatgg	ccgatcgcgt	ttgctgctgg	acaaggagcg	360
ttctttccgt	gagggctcgc	cggcatcttt	ggctctgcgc	ttgaagatta	tttcggctat	420
atccatccct	cttccacatt	aagccgggtg	agcatgctcg	ccgtgtataa	tccgatagct	480
ttgc						484

(2) INFORMATION FOR SEQ ID NO:602

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 887 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...887

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:602

actctagagg	atccccggca	gtcgtatacg	acatgcaggg	cgaatcgtg	agaaagtttc	60
attttcaggg	aaagaatata	agctgaatgt	gcagtatcgt	ccaaaggtag	gtacatgctg	120
aaagttgtag	cggatacgga	gtattttctg	aaaaaatcat	tgtagagtaa	gaaatcggca	180
cgaaaaatct	aagaacgaaa	aagacacctg	agtcttgagg	tgggaatgct	tgctcggaaga	240
gaatccccga	cttctttccc	gctttgaggc	gatgaacagc	gaactctccc	gtccatctgc	300
gggagggttt	aagacccccct	tatacacaag	ggctcttaat	aaatgtgacc	ggatccatga	360
gaggagaggt	cgtcctgaca	aaccctcttg	tgatctttct	ttttttctat	cggcttgaat	420
ggtggcaaaa	cgcaccggct	cacattcagg	atgttccggc	gtcggggata	gctcaagggtc	480
ggtttgcgct	caaaaattttc	gtgtttgtga	cctctaaaaa	cgtggtgcgt	aaactgtttg	540
ttttggcgtg	ggaagtga	aattttacgca	ccacgacgaa	aaaaatctgt	tccgttttct	600
cggaaaacac	agaccgcaat	cggcagattt	ttggctcagg	ttggccggag	atcggatcac	660
cgaagcgagg	ctgatgcac	ggtataatga	gccaaagggt	gtatctgtag	gaattgacgt	720
acttttgtcc	ggaacaagtc	cgttttagag	tatgcgcttt	gatgaattga	atttaggaga	780
tgaatatggg	atgggtctga	tgccatgaat	ttcatcgaga	ccacacctgt	gcaactgcaac	840
catccaccca	ttctggaggt	cgcgatgtga	tcgcttgtgc	caacgca		887

(2) INFORMATION FOR SEQ ID NO:603

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 674 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...674

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:603

gccaaaaaaa	gttttttcat	aatgattttt	ctcattgggt	attagcgacg	caaaggtatc	60
ggccgccatc	agacaggcca	atacctacct	tagggatatc	tttacttat	ttggatggaa	120
ttaggtat	ctgacgatat	tcctaattgt	tgctgttacc	tcttgaggat	attccttata	180
ggtgtctcct	atatgggacc	tttgcccaac	aagcaggcat	tttatccatt	cattttattg	240
tgtacggccg	attgttttgt	gtgttttatg	tatgatcaat	gacacaaaac	gatgtacgac	300
aaggaaaatc	atccgacgag	aagaggtttc	attcaggggac	gtctgccagc	gaatcgatac	360
gggaaagcac	ggaatgtatt	tttgacccaa	gtgatacgct	tatatgagag	gatactatgg	420
tctcctatga	gaggatacta	tgtctcacat	gagaggatac	tatgggtctcc	tatgagagga	480
tctatgggtc	ctatgagagg	atactatggt	ctcctatgag	aggatactat	ggtctcatag	540
agaggatact	atgggtctcat	atgagaggat	actatgggtc	cgcatgaggg	atactatggt	600
ctcctatgag	aggatactat	gatctcgcat	gagaggggact	atggctattg	atggaagatg	660
ctatctgctc	tctg					674

(2) INFORMATION FOR SEQ ID NO:604

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2338 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2338

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:604

tttttgttac	aatttcactt	tgtaaaccgt	gatacatgca	tccgggcatc	cgttgcacaa	60
ctgggtgcagc	cgatacagct	ttcgggatct	ttcatataga	gtaatgatag	cctttgtcat	120
tgacttcatt	cgggtgtagc	tccagcattt	tgtcgggcaa	gccactacac	atagattgca	180
acctttgcaa	cgctgggtatt	aacgaccaca	gctcctctga	tttttgccat	tatagttatc	240
tttttataag	gacttcgaat	acctaaaagt	gagtaatctt	gacgcctcaa	agatgggtatt	300
ctttccctcc	tgatacctat	aaagacgggt	ttttcgatcg	tttcgtcttt	tttgtcggga	360
aaatgttctt	tagcatgttt	tggcctcgtg	ctttgtgatg	aagtcaatcc	gagataagac	420
tctttcaagt	cgaagtcgcc	ttatcacccc	tatcaatcag	ggcaatacgg	tgcatcccc	480
cagacgatgc	ctaactcgct	tttcatttcg	ttcatgctgc	gcagttcgtt	cattatttca	540
attgcaattc	gatgtcgccg	gctttttgag	cttggtcgat	ttctttttca	aagcacggat	600
ttgtacctga	ataaaaaacat	ttttgatggg	gagaagtcgc	gttccactcg	catctgaagg	660
tcttcttccg	cattgctctc	atccccctcc	catagtgaat	acggctcaat	gcatagcggg	720
tggtcagtag	ctcgatgcga	tatgactgat	ctgtgcattg	gggtgatctc	tgaaatattt	780
ggctcgacaa	aaccactgtc	gaacgattgt	tcggcagcct	catcgagaat	ctgctaaaca	840
catcagtacc	aatatccact	ccatccgcct	tcaagtctga	ttgatgtaat	atgccaaggc	900
aacctccgat	ggagtctgct	tttccgctcc	tcttcatgcc	tgtatatgag	gagttttctt	960
tcgccgtagc	gaatgatcag	cggagtaact	cctcttcgta	tttggccgga	tagtaagggt	1020
gctccacctc	gctgaacgat	tatcggtagg	agtttcggca	ctatgggttt	ccgcacctcg	1080
agattgtcgg	aatcgttttt	tctttcagag	ccattcgcgg	gctgttggtg	gcgggttgcg	1140
gggaggagta	cgtactccta	cggaaacctca	tcttttgact	tcgcgagcca	gcagtcgctc	1200
atccatacta	agcgtttggc	ctgtccttgg	acatagacac	ggcgtgtgat	gtcatcgggg	1260
atcagagcga	tactccgata	atatcggtaa	ttagctgtgc	tcttcgtatg	gggtcacgct	1320
ccaatcgctc	agatagagct	gtgtcttgaa	gcgaataaaa	tccgtttcat	gcgctcgata	1380
tattcttcga	actctgctac	ggatatgattg	cggacaaaac	ttccggatct	tctccatcgg	1440
gcaggagggc	cactttcacg	tgcatgcctt	ctccagtagc	aggttgatac	ctcgcagagc	1500
tgctttgatt	ccagccgcac	accatcgat	agaactgtga	tgttcgaagt	aaagcggtgt	1560
atlttggttat	ctgctgctgt	gtcagagctg	ttccggagga	agccaccaca	ttttcgaacc	1620
ggattgatgc	atcgaaatga	catctgtata	accctcaaca	aggaagactt	atctcggcga	1680
gcaatctctt	tcttggccaa	gaatagcccg	tacagtcttt	gctcttcgag	tagatgatgc	1740
tttcggggaga	attgacatac	ttggggcctt	gtctttcttt	cctaagattc	ttcctccgaa	1800
ggctacgata	ttgcgcttac	ggtctgtacg	gggaaaaatga	ctcgcccgcg	gaaacggtea	1860
tcaaggcctt	gctgtcttcg	tatcggatgg	aaagccctgt	gtcgactaag	tttcgggctt	1920
gaaccctttt	cgtatggctt	cgtcgctgaa	agccgacctc	tttcaggagc	atagccaggt	1980
tggaacttct	gcacagtctc	cggacgaatc	ctctttggcg	gaagtatgtc	atcccaatgg	2040
tctggccttc	gatgggtatga	gaagggtgtt	tttgaagaag	tcattggcaa	actcattgag	2100
aatgaactac	tttctctatc	gctcttgagt	ttcttctcct	catcggtcag	ctcccgtcgt	2160
gaatcttgat	cccgtactta	cgtgccaaat	agcgcaaggc	ttcgcatagc	tgagctgttc	2220
tattttcatga	tgaaatgaac	aggtgagcct	ccttgccaca	ggcgaagcat	ttgcagagtt	2280
tttttgccgg	cgacaccaga	gaagaaggat	tgcatcgctc	atggaaaggga	cacaagcc	2338

(2) INFORMATION FOR SEQ ID NO:605

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 484 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...484

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:605

atccccgaaa	ctcttcttgc	gacaggctta	ctgttttcag	ttgacttnca	atctttttaca	60
ttcgaggaaa	cgtattttgt	ctgccaaactc	cttacgagtt	cttctgtcag	ttcaaaaagca	120
ttccaaaagca	tttttacttc	tttctccaat	actttcttgc	catctctggg	aaatagcaaaa	180
cctccaaaag	atgaagtatt	cttcgaattg	ggacaaaattt	ccttgctcaa	tatctatggg	240
ctgtactctt	ttgaatgtat	gttttgcaag	agatgcctta	actcttgact	gggattgttt	300
cgttcaggct	atctgtcatt	attcgggaaa	aaggaataga	agacaatgaa	aggcctgtac	360
tgcagattct	ttatcattgt	tcaagaaggt	gttcattcct	aagtagtaat	aatctatagg	420
agccggctct	ttttgagtcg	aactttgtct	atggcatctg	tgataatggg	tcttttgacc	480
aaga						484

(2) INFORMATION FOR SEQ ID NO:606

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 638 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...638

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:606

tcagatagcg	ccattttcca	cggggcagat	tcttcttggt	cagtccggca	aataaacgcg	60
atccagtttg	acaacacgat	agccaagggtg	ttcaaacac	ggcgcacaat	acgatttcgt	120
ccgctatgaa	tctctattcc	cacctgcaaa	gatcgtcttc	ttttacgtaa	ctgatggcat	180
cggcatgtat	ctcacctcat	ccaattccac	gccgtcggct	attttctgca	tgtcttcaat	240
gcttaatctt	tattgagcca	cacgtggtag	atcttcttct	tcttgaaaga	cggaggggtca	300
gcttagaggc	aagatcgcca	tcatttgtaa	tcagaagtac	accgtagtat	tccgatccaa	360
acgtcctacc	ggatatattc	tctcaggaca	ggatatcgta	ctatatccat	tactgtggta	420
cggcattcgg	ggtcatcaga	atggtcacac	aatttttagg	cttattgagc	agtacataaaa	480

ctttactctc atttccactc tctttatcctt gtagattacc tcatacctgac gtgtaaat	540
tctaccgagt tcggtcacga cttcttcatt gacccgtgat ctcttccttt tcgatcagca	600
gaatccgggtt tcctttcgcg agcaaaccac cgggcatg	638

(2) INFORMATION FOR SEQ ID NO:607

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1401 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1401

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:607

ggcattacct	cggtgttcac	tctgagaaaag	gggaattgac	tgccgaagga	atgtcatatc	60
cggctatcgc	tatcttcagg	acagtacgcg	agtatttgct	atatggagac	ggagcagcag	120
cctgtgacgt	acgctcgccg	ttcggaaaaag	gcgagtacat	ctggaataag	ggcaaggtaa	180
cgggcaaaaac	tctcgtctga	actacgatct	ggccggaacg	gatctcttcc	ttcgctatgg	240
tattttctata	tcagtgtggc	acaagccaaa	aagaatcttc	gtcaggaaat	acagcttaca	300
acgtggaagt	ggtgtccaag	atgggacgga	acgaatggaa	caaacactgg	gcaaagtgca	360
gatacaggga	ggtacgattc	ttcagcgaca	ggattctaca	ccagccttta	tcgtacatat	420
gaacggatga	tcaatatctc	gaggatggtc	atttctacag	tgccgaagat	catgctgtgc	480
atccggatag	ggcattcctt	tctatacaga	cgattgggtg	tgggacacct	atcgggctga	540
catccctgcg	tattcttttg	gagccggaga	tggaatccga	catggtcatt	cctacattcg	600
tatggctttg	cttagcaggg	agaaatgggt	gcctacctcc	cggaagtgcg	aggcgacagc	660
catcgtatga	atggcaatca	tgctatgccg	tgcttgccga	tgcttatgcc	aaaggcttta	720
cgggtttcaa	tttgatgagg	cgtatacggg	agccaaaaaa	gtgatggccg	agaagacgta	780
cgcaacttggc	ggcgtatgcc	caaaggcaca	ctcgatcaat	ttttcgatga	gaaggctact	840
accccgcat	gccacaggac	caaaaggaaa	ccgacctac	caacactctt	gggagaagcg	900
gcaggcagta	gccgttacgc	ttgctattgc	tacgattatt	ggtgccttag	ccgattggca	960
cagttctccg	gccacgagca	gaagcgcgtg	aatttctgcg	taggagctac	gactaccgac	1020
atctttacat	tcgggagcgg	gattctttca	tcccaaggat	gagaaggggac	gcttcataag	1080
cccttcgatt	acgaatttga	tggaggcccc	ggtgcacgag	actattagac	gagaacaatg	1140
cttacactta	tcgctgggat	gtacagcaca	acctcctgat	ctgattgcct	tgatggatgg	1200
gccggaacag	tttgtcagtt	tcttgatcag	actttccgca	caccgatgag	tacatgggaa	1260
gttcaatttt	tattcaagct	gcccgaaccag	acaggcaatg	taggacagtt	ttccatggcc	1320
aataagccga	gccttgcata	taccctat	atatgtctat	gccggtcagc	caggcgaacg	1380
cagaagttga	tccatgagct	t				1401

(2) INFORMATION FOR SEQ ID NO:608

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1853 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1853
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:608

caaggctatg	ctatcctttt	cactgacaac	cggtagtgtc	agcatttttt	tacagccgac	60
ggctcctaaa	gccaagaggg	ctgaggcgat	aattgcaatg	tttttttcat	ttggagtttc	120
ccttatgttt	tttatcgtta	gtttttctat	ttggagtagg	ttttgccggg	ataggctttg	180
ccggctttct	tacgaaggct	tgatttcgag	tagttctact	tcgaagaaaa	gcgtagagtt	240
cggctgagaa	gttcgcccat	gctacgttcg	ccatatccca	gttcggtcgg	gatacaaat	300
cgtacttggc	acccttttgc	atcagacaaa	caccctcagt	ccacccgga	tcacttgacg	360
gaggctgaac	tttgccggct	cgttgcgaga	atagagctgt	cgaattcttt	cccttcaatg	420
ttcttgccca	cataatgaac	acgaccgtat	cctgaaccgt	cgggcgaggt	ccttccccct	480
ccttcaagac	cgatacaaca	aaccgctttc	ggtagcctta	acgcccggt	gcttgcgatt	540
tcttcctgat	aagctttgcc	tgctgccaa	ttttcggtt	tgagtctgcc	tgtacttcc	600
tgaagtattt	cttgatcatt	tcgtccgc	tttgggagag	atagcagtgc	tctttcccat	660
gagtacttct	tcgaatgtc	ggagaacagg	gcacgatcca	gagaatcgcc	cggcatccgt	720
ccggtatagt	cattgaattt	attgctccgc	ttataccgaa	agcgtatgcc	acagagtcag	780
cagagtcacg	ataggcttca	cggtttgcac	ctcatccttt	ttgggcgggt	ttttgcaaag	840
gcagataaat	cggccactaa	aaaggctaag	cgggcaatga	tcttactctc	ttcatagtga	900
tttgtcttct	gattatttgt	tgatactcaa	tattcgatta	taaaaatgag	cgtactaccc	960
ggtttgatat	gttcgccggc	ccacgatctc	catacgccag	atcgctcggt	atagttactt	1020
tccacttggg	cctacaggca	ttaattgaag	aatctccgtc	cagccggcta	taactccttt	1080
agagggaaac	tggccgggtt	tcccctgtcc	atagagctat	cgaaaacata	ccgttgatga	1140
gcgtaccgtg	ataatgacag	gttaccgtgt	ccgaaagggtg	ggtttcgggc	ccttccccat	1200
cttaatgact	tcgtattgca	agccgtcggt	aaggctcgta	caccttccct	gtgtgcattt	1260
atcttgagga	attctctccg	gcctctttgt	tcagtttgac	agccttctgc	tgcaaatcca	1320
tgaatacgcc	tctatttcgc	gcttggcctc	gtcatacgag	agctgagggg	cttttcttcc	1380
agtacatcag	acagaccttg	catgaaatca	tccataacga	cctgtcgatg	cccgaagact	1440
tgaaattatt	accgatgctc	aatcccagag	atagctcact	ttatccatgt	aacacttgct	1500
tagttcttaa	tatgcgcgca	aaatataaat	tttacaccga	ttcctcatac	cggcacatgg	1560
caatatcttc	tgtgcacact	ccatcggcaa	ggcttgccgg	ttattcacag	attacgggtg	1620
catccatata	gacactgttc	ctgtgggcag	ctgtttattc	ggagccgtcg	attggcactg	1680
aagctgaaag	cgaaagaatg	aaaaatgaaa	aaccttttgg	ggctgggtccc	ccgaatgttt	1740
tttttatttc	caagccattc	gtatgtatct	gcacaccaat	tacatgaatg	gcgtgcttaa	1800
ttttaatgct	ctctttatat	cnacttatat	tttcggaaaa	aagagctaaa	acg	1853

(2) INFORMATION FOR SEQ ID NO:609

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 658 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...658

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:609

gacttccttt	tccattcggc	ctacttcttc	ttccagtga	ggaatggcat	ttcgaagacg	60
aagaatttcc	tgcttcatac	cgttcgctc	caaagccgtg	ctcttccata	caagagtcgt	120
aactcttcca	gacgggtagc	cgcctgtcca	atcttctttt	ccgagccatc	acatcctgat	180
agagcgactt	ggcttcctgc	tttggaaagtc	gctccagcgc	gtatagatac	gcatcccctg	240
cataggaaat	aaatctgacg	ttcgggaagcc	ttcttctctg	catcgggtgcg	gttgccccgag	300
ccgatgcgat	cagacgactg	tagtctcgct	cagggtcttg	cgtgctctta	tgctcttgag	360
ggatgcatac	gctcttttga	gggccatatac	gtagtagcca	cagggcgccc	ttcttcattg	420
ataacgaagg	tatagacagt	gcaacatccg	caggacaaaa	acggtcactg	gcaaagaagc	480
cgatcccacg	aattcgtcgt	acaccagcag	ataatcggtg	taaggggaat	tgaaaggcaa	540
ccgagcaaaag	ttggttccag	aaaaatgcca	tcctccaaat	cacgacggtc	atatacagat	600
catatccgcc	tattccatca	ggtcgatcac	tggcaaaaagc	agggtaaaac	catccgcc	658

(2) INFORMATION FOR SEQ ID NO:610

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 671 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...671

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:610

ccccgctcta	tttcaatgca	gcgagggtcga	acggttttgag	cttcaggcat	ctgctccggtt	60
tgctttcttt	ggcagttctca	tgtgggagct	gcttatggaa	acgagccacc	gagtatcaac	120
gacctctgtg	ccaccaccat	aggcggttag	ctttggggga	gatggggcac	aggctgtcgg	180
acctgtcat	cgacaacgta	ccacagggtg	ggaacgtatg	gggcgcgagg	tggtatcgc	240
tctgacaatc	cgatgcgctt	tctcaaccgt	ctgacagcag	gagaggtgac	ttcttcggga	300
gtcgcagcgg	acagatattt	cagtctgtcc	ccataaacat	agtgtcgatg	ccggctttcg	360
ctttttggca	gacaagcggc	atgcccgaa	cgtgccacgg	ctctgaccct	gaatctgaga	420
ttcgactacg	gcgatccatt	cgaagcgaga	ctttctctcc	atacgatttc	ttccaattca	480
aagccggatt	agtttctccg	aatcgcaacc	tctgctgagc	cagatcaatc	tgatcggaac	540
ctaagcggat	gccaactgct	cgcacacgaa	cgaacggttt	tgggtgggagg	tctctttcag	600
cacttcgact	actacaattc	ggaaaaacga	ataagcaaaa	ttcgagggag	gtactcgtca	660
cccataccgg	a					671

(2) INFORMATION FOR SEQ ID NO:611

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 590 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...590

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:611

gcatcagccg	gaacataacc	taaggagttg	taccactccc	aacctttgca	cccgtggagg	60
agattttcgg	atggacggct	ttcgtagcat	gcaagagtcg	ttcatcagtg	tacgggtatc	120
ttctacccga	acacccttga	ggtaggctcc	gccagaacag	aagcagagtt	gttgccatc	180
atacaatccc	gatggccgga	ctggccatt	cggggaaaaa	gccactctcg	cgatatacat	240
tcagcgacct	tcctgaattt	taatgttttc	atcgggatac	agcagattga	gcaggggaaa	300
agggctcgaa	aagtgtccca	aaatccggta	tcggtataga	gataccggga	agtacctctc	360
cattgtaggg	gctgtaattg	acaaaattgc	cgaagcatcc	tcctcataga	agcgacgggg	420
aaaaagcaga	cagcgataga	ggcggaatag	aatgtagtgc	gctcatcctt	cgntcctcct	480
tcnacatgna	gcgtccgagc	accttattcc	agcttcgcga	cggcaagtct	gatccgggtca	540
aactctgccc	tttgacttnc	gcagatttct	ttcggctgct	cgacactgta		590

(2) INFORMATION FOR SEQ ID NO:612

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 997 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...997

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:612

tgcggctgta	tctcttccaa	tagagccatg	atgatgcgca	cgtcttcctt	cccaaaggat	60
ttttcctgat	caatcccgtc	tcatagaaag	gcagatcggg	aaatgaacat	gacccctcgg	120
caatcccaag	tatctgcatg	ccgtccggct	tcttcgcgtc	gtatggttcc	tttcataaac	180
ctgatatacct	cctgctggga	tcccccttcta	tctttttgtg	catgagatag	tgccgcacct	240
cttccctttg	gccagaatgg	ggctgctctc	atgaccgtat	tggcggcata	cattctgagg	300
tacgacacat	atcgaatcac	ttcttcatcc	cccacggcta	tatgccggag	gtctggtagg	360
ctacatgtac	atcgtggccc	tgattgacca	attgtggaat	gttccctcca	tcgaaatgac	420

atcgatcatcg	gggtggggac	taagataacc	accctcttgg	gatagggtag	tgccctctca	480
ggcctgctgc	gtcatcggca	ttgggttttc	cgcccggcca	gccggtgatg	gtgtgctggt	540
gtcgttgaag	agcttgatgt	tcacctcgta	ggccgagccg	tatttggcag	caattcgccc	600
aatccgttct	ccgtatagtc	cttgttcgtc	agcttcagat	gggcttgccg	gtcagtcgcc	660
acagccatac	cacagccctg	cgtatggctg	tttgttccag	atacagctcg	tcaccagcca	720
aggacgactg	atcctgtgag	acaagacgat	gccgatagat	ccagcacgat	ggaggcattg	780
cgatcaattg	caggggacgaa	gccggagaa	cctcgcaaat	ctttccttcg	atacttgggc	840
tattacctct	gccttactct	ctccccatgc	cagcagggtc	acttgtgagc	tttttggatg	900
gtagccagtc	ccatactgat	agccgatggg	ggatgggtgc	gtgggagctg	aatatcgta	960
gagcatcggt	gtgctccgta	ggccgagtac	gacgagt			997

(2) INFORMATION FOR SEQ ID NO:613

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 998 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...998

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:613

cgccctggcg	cagcagatag	gaacggctcag	cgatgatgag	cagcaccacc	gaatatcttc	60
ggcgatggag	aggaggaagt	gctcgaagtt	ggccgtatga	tagccgtatt	gcgcatgtag	120
atctccgatg	ttttcagcag	gaggtcgtca	ggcgagccac	atcttcgcc	atgagctcgg	180
ctatctcctc	cggctctgca	gccccttcac	cgccggacga	tagaagagga	gtgctccgat	240
ggccttatcc	ccagcccgat	ctcacaggag	gctatgcgtg	ccacttccat	gttggcaaaa	300
gtccgtgcat	accgtttttg	tcgcgatcga	aacatcccaa	ctcgtaaaac	ggctcagcag	360
actgcgtact	ttcttcacga	gctgccgatc	ggagctagt	tacgaatcaa	actcgcgtat	420
gaggagagga	agcgactccg	ccatcggcgg	agaaaagagt	attgtcgtgt	attgtcatga	480
gggatacagg	tgggataatg	aatagtggac	gatggatcat	acttgtagtc	ggaaagcatt	540
cggttagagc	agaggagaga	aaaggcgaac	aaaggattcg	ctgaattttt	tatccggctt	600
ctctttcgcc	agcgtttgag	atcgagcggg	tcgctctcaa	caagtccctg	agaagatgg	660
cttccaatcg	gtggacagta	ggctcgcata	gatgatacca	ttgaattcga	agttattttc	720
caagctgcgg	aagtcataat	cgtagagccg	atcgaagcca	cctgactatc	caccattatc	780
agctggaatg	gagaaagccg	ttggtataga	ggtgtacatg	tacaccggcc	tgcagagatc	840
ctccacatag	gagaaggccg	ccacttgtgg	cagacgggca	tccttcgttt	gggcaccagc	900
aggtgtacat	cgatgccggc	caaagctgcc	ggatgagagc	attattcagt	ccttcggctg	960
gaaggaagta	aggagtctcg	tatagacatg	ttcgcagg			998

(2) INFORMATION FOR SEQ ID NO:614

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1225 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1225

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:614

ccgctccttg	aagactgtgt	tcatcgccaa	cttcacacaa	tctaccggct	ccccgtacag	60
ctgtataccg	tatagccttc	ctctctgtgc	cgaagcttag	cttgatgggg	agagtagagg	120
taatggcagc	cgaagccccg	gatcgtgccc	gtcgggagct	acgatcgtga	cattccctaa	180
tgggcgcagg	gcttctccag	ctcgcggata	ccctgtgctc	gaaaaccatc	gtcattcgaa	240
actaaatttc	aatcggatcg	gctttcattt	cttgtcttct	tcaggaataa	tgcccttagt	300
tttacgataa	aacgtagtgc	ggaataggag	gggatgggta	cgaatttgcg	ctcgatgcag	360
ggacgccttt	gcttccatag	gctaaatacc	agggacgatg	aactcacact	cgtctccgat	420
aaccatattc	tgcaaagcaa	tcggaagccg	gtgatcgact	tatccttctc	attcctgtaa	480
agtgtgatac	tgccggcttt	tcggagttat	agtttccatc	taccatgata	tttcttacta	540
acgatacgtt	tggtagtggg	cctccacacg	ggagggtggcg	atcggatgtc	tgtacccgta	600
ccgtttgtta	tccagcgcac	gtaaacgtat	gcgggtcgtcc	atcaacagat	actttcttga	660
agttggtgct	gtccgcgatg	gcgttgaggc	cacttcgttg	tcgtgacgac	gctgtttttc	720
ctcattcggg	ctttttcgca	cgaggagaaa	acaaggaaga	tgtttaccag	catcagccca	780
agggcatgat	gatattcttt	ttcgttttca	taggtctatc	tttttgagca	agccttgagg	840
cttacatatt	ccgagataat	agcattcaaa	cggctgatct	cccacgctcc	tgctccatcg	900
tgtcacgata	gcggatggtc	acggtattgt	ctcgagcgat	tggtgatcta	ccgtgataca	960
gaaaggggta	ccgattgcat	ctgacggcgg	tagcgtttgc	cgatagaatc	cttttcatcg	1020
tattggcagc	gaagtcgaaa	cggaggtcgt	gaacaatctc	ccgagccttc	gcatcaagcc	1080
atccttccga	accagagggg	gtacggccag	cttcacggga	gccaatgtgc	gggcagcttc	1140
agcactacgc	gcattctgcc	gttggaagtc	tcttctcgca	atacgatccg	aagagaatcg	1200
tcaggaacat	ccgatccagt	ccggg				1225

(2) INFORMATION FOR SEQ ID NO:615

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1116 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1116

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:615

accgttgctt	gaacgccgtn	nctagagnat	cccctatgcc	gatggatacc	ttcgccctta	60
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tcattgcgcag	atcgggggtct	tctatcctct	tcagacatca	gccgcgaacg	tcgtgtggac	120
tattcttcca	tacctatata	tatagaagta	acgacgaatc	cgtgggtacga	ctactggaat	180
ccgtcgcctg	tcttatagca	ggaacgttct	ccgctgtaca	tcggagcagc	gactctatct	240
gcactggctg	ctgtatttgc	ctgcaatttc	acgaatcatt	tctatgcctt	gagtagcaaa	300
tgctggccgc	acatggngctg	ccgccacgct	ctctgggtcc	tctatcgcag	agactgcggc	360
caagggtgcag	gagatgtccg	ccaccgaagc	tcgaccgggc	cggccaaaag	agacgacaca	420
aacactctgc	aaaaacatct	cgtctgctca	acccatatcc	ggattggcag	gagatctatc	480
ggatacttag	gatagcattc	ggaagatgta	cggaccgaaa	gaacaataaa	ccccatttta	540
tctcatgagt	agtattccat	tcgacctgaa	gtccatacgg	ggattcgttt	cgatgtggac	600
ggagtgatca	gccataccgt	ttcggctatg	gatgccgagg	ccagcctatg	cgaacgatga	660
atgtaaaaga	cggttatgcc	atgcaaatgc	cgtcaagcaa	ggcttcttgc	tggccatcat	720
cacaggcggga	tacagccggg	catagccnaa	acgggcagaa	tatctcggca	tcaaacatgt	780
ctattgcgtt	cgtccaacaa	ggtggagcag	ctcgaacacc	tcctgcagga	gacgggttga	840
aagccgaaga	gatagtttat	ataggggacg	atatacccga	tcgccggtga	tgcaagaggg	900
tggtcttggc	cgttgccccg	gcggatgcag	tccggagatc	aaacagggtg	ccaaatacat	960
atcgcactgc	cggggaggag	gggcgtcgtc	cgcgatgtca	tcgagcaaac	gctgaaagca	1020
caaggccgcg	ggcacagggg	aatgggttcg	gatggtagcg	gacggaagtc	ttcttgatga	1080
aaaatcttgt	ggtttatgct	ggacaatctg	aagaaa			1116

(2) INFORMATION FOR SEQ ID NO:616

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1017 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1017

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:616

agaagcncac	tccggtagcc	gaagtttcgc	ccatgttgcc	gaatcccatg	cctgtacgtt	60
cacagccgta	ccccattctg	ccgggatacc	ttccatgcac	ggtagaggat	ggcacgctcg	120
ttcatccaag	agtccaacnc	ggccatgtag	caccccaaa	ctgctcttcg	gcagagaaa	180
ggaagtcctt	acccggttgc	cctttacggc	tgccttgaaa	cgggatacna	ggtctttgag	240
gtttttacgg	agagttcgtt	gtccaagtgc	acaccattct	cttccttgac	cttcgcgatta	300
tttcttcgaa	cggatctata	tcttccttat	tcgtgggctt	catccgagta	ccacgtcgcc	360
gtacatctgc	acgaagcgac	gataagagtc	ccggcaaata	gttcgttgcc	ggtcttgcgt	420
acgataccgg	ccaccacttc	gcgttcagac	cgaaggttgc	gatcgatatc	atcataccgg	480
gcatggaagc	cgtgctcccg	aacgtacgga	tacgagaaga	gggttctcgg	tgtcgccgat	540
ttcgacttca	tcagtccctc	gatatttctg	atcgcatcgt	ttacttcgca	cgcagcagct	600
ccactacttt	gtctcggccc	aatgtatagt	attcctgcaa	acctctgtcg	tgatcgtaaa	660
accgggaggc	accggcacac	cgataaattc	atttcggcca	aattggcacc	cttacctccg	720
agcaggttct	tcattcctgt	tctccctcgg	ccttcccat	gccgaagggt	tagactcttt	780
tctttccatt	tagattagtc	cgttcggtat	tattatgatt	tggatagttc	ttattatgac	840
aaaaagcgat	aaccgactcc	ttctccgagc	ttccgggaag	ggcgtttttt	gttgtaaact	900
gcaaatatac	gaaaaaagag	caagatacgc	tctttccacc	acccctcaaa	cccatgaacc	960
tcaaggagta	tgggacagaa	agtaggcgaa	gcatgctata	tcacaggaga	aaaagac	1017

(2) INFORMATION FOR SEQ ID NO:617

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 587 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...587

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:617

ggtgaagccc	gaaaaaaaga	aaggcctctt	cggaacgctt	caggccggca	cggtaccgac	60
caacgctata	tggccggagg	gaacgtcaat	cggttcgagg	aaataagcaa	tggacattga	120
tcggtagtgc	gaacaatacg	aacaataggg	ctttagcgag	atggacagcg	agatgggatc	180
catgaccttc	ttctctccca	aggcgggtgt	cgacgcggct	tcggcaatag	tggagggtgt	240
acgtctcgtc	gatgctgggc	ggcaacttca	gtgtcgaatt	ctcctctgcc	cttatacagg	300
aggcgatgca	cgctacggat	acaacgacaa	ggccatagag	acgccaaacg	cgtggaaaat	360
atcctcgccg	aagggaatac	ttatatggac	gaaatatatt	ggaacgctct	ttctctcaca	420
atggtcaggc	gcgatttang	agcaatggaa	accgtccgaa	cgtacccgaa	gtggtattcg	480
agccggatct	tcgatatcca	agatcgatgg	gttctttaac	gacacatacg	agacgaaagt	540
gccaccggaa	tctctatcaa	caaaggtcta	tccaccaaac	tacacag		587

(2) INFORMATION FOR SEQ ID NO:618

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1427 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1427

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:618

agcttgaaat	tacgatacgg	atatagcagg	ttcagatact	catagcccag	ctgaaaccga	60
ggcgaaaatc	atatttgctc	ttgatgggca	ttttccacaa	atagaacttt	tgagtccgat	120
ccccggtgaa	aagccattgc	tcactgtgca	acatcttcgg	actgaagtac	aaggctcactg	180
ccagctcttg	tgtagggtca	tagtggacct	tgctcttggg	tatcgggtgag	aaaagaatat	240

gggcgcattg	gtccatcccc	aatacgcctc	cagatgcttg	gtataggata	tcccaaactg	300
atgaggaagc	ggccgagagc	ttttttgtca	aaaaagtctt	ctggctctcg	aagactatta	360
ccttttcaac	aataccaatg	atacttggga	catcgtatac	atgagcttcg	gacttccggc	420
ctcttcccag	tgtgctcttc	ttcatgtatt	cctaccgaaa	aatccaaccc	ttcgggcaga	480
atgctgtggt	taccctcatc	cgtatgtcga	tgtccatgcc	gaagatattg	ccacaaaaac	540
atttccggcc	gtggccgaac	tgaaagtggg	agctgcctca	atgctcttat	ctttaacttc	600
gattgggcat	tggccgagag	acccaaaaac	aggagtaagc	acatatcgat	cctgtcaaag	660
tagttttttt	catttcagtg	atttttttgt	gttatcgatt	ctaaatggga	gcgaaggtat	720
caaattatta	aatgatgacg	gagccggatt	tggaggaaaa	catttttttc	ttgcagtttt	780
ctcttttctc	gggcgtgttt	tctggattgt	acgaaagaat	acctacattt	gcctcgacag	840
accgctacgg	gggtgcttgc	cggcaagaat	tgcgatacgg	cagctgagat	aatacccata	900
gacctgatcc	ggataatacc	ggcggaggga	ttagaatcga	atacacacta	tgcgtgccag	960
cagcttcggg	agaagcaccc	attgtggacg	gtcaaccaca	tgtgaaagaa	cagatattat	1020
ccctcaaaa	acgcaaatgc	aagttactat	caacaaccaa	ccgatcacat	gcctcgaagt	1080
atgggactgg	ctgccctctt	ggaagccgag	cggatccaag	tggagcgacg	gccatagccg	1140
taaaacggaga	agtcgtaccc	cgtgcctcgt	ggccggcttc	cgtctgtccg	aaggcgatga	1200
gacccgtgatc	atccaagcca	cctatggggc	tgaccgacgt	accttcagct	tcaaggcgat	1260
agtctcaaaa	cagtaaaacc	caaaccattt	acccgattga	tatgaaagaa	ttcaaagtga	1320
ctacggctct	ctgccgggca	gtgagaaaat	ctatgtcgaa	gagaagcggt	tccttctggc	1380
gcgtaccgat	gcggcgcac	cgaatgtccg	acaccatatt	gagaacg		1427

(2) INFORMATION FOR SEQ ID NO:619

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 487 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...487

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:619

actgctgctg	tagcacacac	aagcctatac	cgatcagaat	gccgatggcg	ccccgctcat	60
ggagacgagc	agtccttcta	tccgaaagat	acgagagagg	tttgggatgt	tgctccatt	120
gagtgaagcg	tatagatgtc	ttccttcttt	ctataaggag	catggagagg	ctgctgacta	180
tattaaatgt	agcaagacaa	ggataaacag	gaggatcagg	tagctcatcc	acttctccat	240
cgctacaagt	gagtgatctt	gggatgctgt	ccggccaaat	cgagtacttg	gtagtgtccc	300
ccagagtctc	ttttaggcgg	agagctatct	gctctgcac	gctcccgttc	gtagctgtat	360
ggccacggct	tctgcttcat	gatccgaata	ataagcagat	tgcgcagact	gtctatggaa	420
aggatgatgg	aattgtcctc	tgttgaggcg	cggatgcaaa	taccgatgcc	acttgccctg	480
gagcgac						487

(2) INFORMATION FOR SEQ ID NO:620

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 558 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...558

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:620

gtcggaaaagt	cttctcctcg	cttttctcgc	ccacgagcaa	ctttgtctca	gaggagtgtgta	60
tcccatggaa	cggatggcca	gccggtagcg	tcccggatga	ggcggaggat	aaatcgtccg	120
ctctcgtccg	ccactactcc	gctctttttt	cagcgacata	gatggatgca	taagatacgg	180
gggcttcatt	gtccgcgcga	ggacaagacc	tttgatcacc	gtttgtgccg	tggctgaata	240
gcctgcgata	ctattataat	aatatatagg	aagaagtggg	gaagtctgca	cctcgcaggg	300
aagtcaatga	caacagatgg	tgtggcatgg	gtattcttcg	tcttttagcg	atngatctgc	360
tctgtaaaaa	taaggaaatg	atacttcnat	agctttcctc	tcgctttccc	gtttaatggc	420
agtttccact	cgcgtacatg	cgatcgtatc	ccaattatgt	accttagcgg	catgaaacaa	480
atacccttgg	cgagagaatg	cgtccaaaac	gctggccgac	tatgtggggc	agcagcatcg	540
atcggatcgg	ggctgggc					558

(2) INFORMATION FOR SEQ ID NO:621

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 483 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...483

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:621

tttactgccg	tatcagtatc	cgcggaggat	tcgtttgatg	tcgttcagct	attgagggcc	60
tccaaggggg	tgaggttgtc	gatgttcaga	tcgaggattc	ctctctgatt	tgggacaaga	120
cgggatcatc	gagctgaaag	aagctaactg	ataaccgtcg	atgctcctgc	ctttttcgtc	180
ccgaggaagc	gtgggcacgc	atttttcacc	ttttcggaag	ggcctcgttt	gggtgtctttg	240
gttttggctc	ctcttcctct	attttctccc	tttcttggtc	gagacgatgc	aggagtctgt	300
ggctcgtgtg	acgatatggg	gtggcatacc	gccgagacgg	gctcttgaat	accgaagctg	360
tgtgcactgc	cgtccggctc	caatttgcga	agaagagcat	cttgccgtcc	acttcgcgag	420
ccgatacatt	gaagttgggt	accganncca	gttgcccttt	ccagctcgtc	agttcgggat	480
aat						483

(2) INFORMATION FOR SEQ ID NO:622

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 726 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...726

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:622

tttttattac	aactttggag	cgaatttttt	caagggcaga	ctcgggagct	tgttttccac	60
gacctttcaa	cgtagagccg	actgcttaat	cttattttta	acaggaacag	aaatatgtcg	120
aaaaaatcga	tccttctgct	ttgctgtcgc	tgtgcttcac	ttctgctacg	aaggctgtga	180
cccccgtcag	aaatgtcgca	atagccaagt	gaacagcaaa	gcaaagaccg	aacgtacaaa	240
gccctggact	ctgtacggta	cattagcaac	atgattgcag	atcggctgga	gttcgcaaca	300
agattttctc	cgaaaaagag	gtaagaaaag	ccgaatatga	aaacggctgg	cgatggaagc	360
actcaattac	cctgccatag	atttatatgg	tgagattctt	ggagcgagta	tgtaaacct	420
ttcgtgggtg	caggaaccga	ttcgaaattc	cgaactccta	tgacattgat	tgctcttcgt	480
tcgtgatgcc	gtcgaagata	agcaggtcac	ctctcaattt	ggctaccgtc	ggcgtttcga	540
cggatgcact	atgggtattga	tctttcagtg	aatcgtggcg	atacgataga	gcagcctttg	600
acgggaaagt	tcgtgtacgc	agctatgaag	cgcgtggtat	ggctactaca	tagtcttgcg	660
ccatccgaac	ggactggaga	ctgtgtccga	cacatgagtc	gccaatgggt	agacgagaat	720
cagatc						726

(2) INFORMATION FOR SEQ ID NO:623

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 591 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...591
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:623

tcgaacaaaa	agtcaaagaa	tattttctgca	acatcaatgg	atataatgaa	gcaatatttt	60
ctgggttgc	aacacactat	ttaggcaata	atagcctatt	attagttgcc	ttggggctgc	120
tatttcctg	attgcaggaa	aattcatgag	aatgagactt	cttccgaaga	aatgagctat	180
gaagaattca	aaaaacgctc	tttgagtgc	gcgaggtaga	tgacctcatc	aaacttatta	240
ataaacgggt	tattgccgtc	cgataaaaagt	tgtttgattg	ctcaccagct	tttgtgatat	300
aaaaaagcag	gtatcgatcc	tccaggatcg	atacctgctt	catcaaatta	aatatcatct	360
tatcccatta	ttgaactatg	acgagggact	aactcttgct	tcttgttgaa	gttaaaagtg	420
atttgttgca	ccttgccgaa	gtatcttcta	tatatacgtc	taaagatatt	ggtgccggca	480
tttcatcccc	ttcgtcgcca	ttttccctcc	gattggattc	ggtgccggca	gaagtttttc	540
ttccgtttgt	aacaaatgga	tccttttgca	tcttcatata	tacagggctt	c	591

(2) INFORMATION FOR SEQ ID NO:624

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 416 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...416

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:624

tgaatatagc	cgctgccgta	ggctcgctgg	cagtaatggg	gctgatcggt	ttgtcagcac	60
caagggtgcg	agccacgtta	cgctgctcat	tatcggcgta	tgatcggata	tgtagccact	120
gccgtcatcg	gggtattcaa	gtttttcgta	tcgaagaaga	tattcgggca	tacgtaattt	180
gggggttggg	cagctttccc	gtgccacgga	ttcgcaactg	agtttctttg	ccattctgat	240
gttgacttta	ttccggccgg	tatgctcctt	gtcaagcagt	tgaatctctt	attgtgggag	300
aaagctacgc	acgtaatctg	ggactgaata	ctcgtcgggc	acgctgctcg	tgatctcttc	360
cgccggtttg	ctcatcgcta	ccggaacggc	ctttgcggcc	catcggtttt	ttgggg	416

(2) INFORMATION FOR SEQ ID NO:625

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1256 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...1256

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:625

ggttcgaact	catggcagtg	atgttgaacg	aattgcgatg	taccagacgg	cagggtcagc	60
ttccatcagc	tccacgcatg	cacgaagagc	atcggggcaat	acatcatatc	catataagta	120
ccctctttaa	tcggacaagt	gaagcgtctt	ctttgacagc	tgcataataa	atatccacgg	180
catagtccgt	cgttccccac	cggggagggg	gacgttggag	atcaaaccgg	ggaaacgaac	240
cgaactgtat	ctacaccgaa	acgcttgtgg	tagtagtcac	tcaaaagctc	gccatgacct	300
tcgttactcc	gtacatgggtc	ttgggacgct	gaatagtatc	ctgggggtct	tatccttagg	360
agtatcattg	ccgaaagcac	cgatagagct	ggcgtaaaca	ctgcacaatt	cttttcacga	420
gctacttcca	gtgtattgaa	agtcctccca	gaccaatatg	ccatgctaac	tgagggttgg	480
cttctgctac	gcactgagaa	gggcagccaa	attgtaaatc	gtatctactt	tatacttata	540
accacttctg	ctatttgctt	ggcattgggtg	atgtctacta	tttcggcaga	cccgttttcg	600
agtagttcgc	ccttaggctc	tgacccgggg	atataaccgc	ttcaacgttt	ccctgaggat	660
aacgctttct	caactccata	gtcaaccgga	tccgatctgt	ccggtagagc	cgataatcag	720
gatgttcttc	attctctact	ccggtattgc	tttaagttag	ttgggttcat	taaaattcgc	780
tgcaaagtat	ggattattct	cataaatatg	cgactaaaga	gcagtacaaa	atcatgaaga	840
cgaaaagaaa	gacaaagacc	tctccacagg	attctgacga	ataatgccat	tccctctttg	900
aaggggttta	agccgaacca	gcataagaaa	aagaacgata	aagtgcgaaa	tcatttgatt	960
tcaagcagat	acctatatgt	gggattgtcg	attaggcgga	ataactatac	ttttgtttga	1020
aacaaaacat	attttttcgt	atgacaacac	atcacataaa	gaaatcatac	tcacccaaac	1080
aaagctaagt	gacttgatat	gcgagaatta	cgacttacta	ctggtcatac	gcgctttggg	1140
atttcgcttg	gtttcggaga	aaagagcata	cgagaatctg	tgaggacaat	aaggtaaaca	1200
ccaataccct	catggctgta	atcaagcact	tatcaaccgt	cccgaacacc	cttccg	1256

(2) INFORMATION FOR SEQ ID NO:626

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 664 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...664

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:626

tagaggatcc	ccgcaaaatt	cattcataaa	atggaaattt	tattgtttgt	gaagccttat	60
tatatattgac	taaagttaca	gaactatata	tgaatatgtt	tacatacagc	cagatatgaa	120
tagactcaac	tggacgcttt	ctgcactatt	gaattatcca	cttttagaga	ggatgatttg	180
ttttctatgg	aattaacaat	ttgcatgaaa	ctgtcaagaa	agaaatcttg	gaatacttga	240
gtgattagaa	aaaggaccaa	tctttacttc	taaaattcga	gagataaaat	caaatttgaa	300
aattcttttg	tcgatattga	ggagcataag	gataatttgt	tatagaagca	aaggaaatac	360
ataaaagcac	cttggttcga	tttgagaaag	ataaatgttt	gtgattgact	ttagaaatgg	420
aaatctcgaa	ctttattcat	caatgaccaa	tgaccatggc	gaatgagtta	tgtatggctt	480
ctgttttttt	tcatatcggt	tttagttgaa	actacagaga	aaaatgaatg	aagtacctgg	540
attaagaaaa	ggacgcttga	agtcttattg	gaatacagct	tttaaagggc	ttttttctcg	600
gatattcgtg	gtcctggctg	cattgacaag	cagaactgtg	gaactcttgct	cttcggctga	660

(2) INFORMATION FOR SEQ ID NO:627

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2198 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2198

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:627

attctaactt	ccaagattga	tcatgggctc	aatccagata	cacatgccat	tttcagcaaa	60
ggccctgtac	ccggctgtcc	ataatttggc	acctccggga	ttcatgcac	tgccgaccga	120
ttccatgtcc	gaccaactct	cgaacgaaga	gtatccacga	ctttcgcagt	acttctgtac	180
tgcactgccg	atatccctat	tcgatagcct	tctatggcaa	cagcaattcc	ttcgtacaac	240
gactcttctg	cgttttcaat	agtcgaatta	cttccggagc	aacttctcct	acagaaacgt	300
ataggcagaa	tctcctgtaa	atccattcaa	ggatgtaccg	cagcgactga	tacaatatcg	360
ccttctttga	tgatagcttt	agcagaaggg	atccatgaac	cacattctca	ttgaccgata	420
cgcaataact	attggggaaa	caccataacc	aaggaaagcc	ggctcagctc	catggtcacg	480
aataaattcc	ctgcgacctt	atcaagcatc	aaggctcgaaa	cacccggccg	aatatttttg	540
caacttcggc	cagagtcttt	ccaaccaact	gatttgcttc	gcgcacacag	cgatttcttc	600
atctgtcttt	aggtaaatac	tcaatatgcg	gaaacaggcc	aactctacct	ttaatacgcc	660
cgctcttcaa	caagccatcg	taatgttcat	caagagatgg	ctttcgatct	gttgcaacgt	720
atccaaaaaa	actccaccaa	aatcagcaga	gaagttcctc	cgaagaattg	cgcaaaagct	780
gaacaactcc	gaacatctcc	gcaaaaagcag	gcaggatggc	aactatagcc	aaaacaatgc	840
tccaggaagc	gttatccggt	ccattatcgc	atcaatataa	tcttcgtttg	ttttccgggc	900
ttaataccgg	gaataaaaacc	gttgttcctc	tcagggtcac	ggccatctgc	ttaggattga	960
tcgtaatcgc	cgatatagaaa	tacgtaaaaa	gaatgatcaa	aatagcaaat	acaagattat	1020
accaaact	gtgtgttag	acatagcact	cagaaacccc	gaagactgat	ctacattgcg	1080
aatcccaaaa	tagagatcgg	aatgaacatc	agcgcttgag	caaagatata	ggcatcacat	1140
tggcagcatt	taccttcaag	gggatataat	ggcgtgtccc	ccatactgct	tattaccgac	1200
aaccgccttc	gcataattgca	cagggtcttt	cttgttcctt	gtaccaaaaag	gattgcacct	1260
gctatgacaa	aaagaggaat	acaatctcag	caagaaaagc	aaccaaacct	ccaacagcac	1320
tcgtgtgcga	gatgtgaact	cagctacaaa	tgcatggggg	aaacgagcaa	tataccgatg	1380
agaatgatca	acgaaatacc	attaccgata	cccttgctctg	tatacgctct	cctaaccaca	1440
gaacaacat	actaccaccg	gtaagaatag	aaccgcaact	atctggaacc	aaaggccacc	1500
gggcatcgat	gctcctacaa	ctgcatttgc	actcgcaagt	tcaccaataa	ggtaagagac	1560
tgtaaaataa	aatagcaaca	gtcagataac	gagtcacttg	attgatcttc	atacgccact	1620
ctcaccttct	cgctgcaact	tttgcatgtc	aggtacagca	atcgctccaa	ctgcataaca	1680
atcgaagcag	agatataagg	cataataccc	aaagcaaaat	agatgcatgg	gagaaaagccc	1740
ccccggaaaa	catatccaag	agagcatcag	tcctccagca	gtctgggtctt	tgagtgtctga	1800
caacgatgcg	gggcaatacc	ggggatcacg	gaccaaataa	acccaaagcg	ataaacgacg	1860
gaggaacaat	aatggctcgtg	agaatgcgtt	gacgcaaaat	cctcaatctt	catatatctt	1920
tgattgtttc	taccgcacgc	attaagctta	tagttttaca	cagatcctcc	tgctcttaca	1980
atagcttctt	ctgctgtctt	tgagaaaagt	gagcttctac	tgtcaaagcc	gtagtcaatg	2040
taccattagc	caatatctaa	ctaaagagtt	tcgagaaaac	agccctgcag	caatcaagtc	2100
ctctacaaaa	tcttgggtcag	agagttagcc	tcagacaaag	tttgaagcac	agacagttga	2160

(2) INFORMATION FOR SEQ ID NO:628

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 665 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...665

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:628

gctttcttac aaggaaaagg ttgtatctcc ttgtctaata tgctctcgtc ctcttcgttc	60
agcagagacc aaacatctct aagcaagtgt cccaatcctt atccgaagct gtcttccaca	120
tataagtgtt cagagaatgt ctatttgtca aatccgtaca acgaggaaga aaggccgtag	180
aactattatt atgagaccgg cgaagaatcg aggggaaagt gcttctctat caatatcttc	240
catcctgtat attgcaaaaa taagtctgaa agtcggaata accacaaaat aaggggttac	300
ttatccggaa atcagtaaaa aataaaaataa tcagagcagt gtcaaggaga aaacctccga	360
cacagccctg attatatcgt ttgaggctat ttccctgtgg aactattccg atgggtgcttc	420
ttccattgcc ggttcggctg tggcacggaa aggaaactct tacgctcggc tgtcgccttt	480
tcgtaatcgt acgatgcata acgacgagct tctcgtaatc gcgcaaacca gtaccggccg	540
aatgaggtga ccgcagataa cgttttcttc agtccttcca ggtaggtcgt cttaccacag	600
atagctgctt cattcagcac cttgggttgt ctcttggaag aggcccgcg gacatgaagc	660
tcttg	665

(2) INFORMATION FOR SEQ ID NO:629

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2443 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2443

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:629

ccatacttttg	tcacttgcta	tatatcggtg	ccgccgcaat	cctcacggct	gcaactcaag	60
caatgcagcc	cttcagtcgg	gagcggagnt	aaaacacgac	atcaggaaga	ttacgaccat	120
gatggagata	aagcagagaa	aaaatcccat	cggccaatga	gattcacttc	tcattgccggc	180
aggctgaagc	agtaggttgc	aggtagagga	agtggcacct	gcctctttca	actatgtgat	240
caaaaaagcg	gacagatcct	ctccgccccaa	ggcggatgaag	ccaccatagc	agctcggcca	300
acggcatcgt	ttcgtttgcc	ggttcggcct	ttacagaagg	agctccgtac	gagcaggaga	360
gtgcatcgta	cgcattctctg	ccaaaaatct	gcggatggag	atcccgtaac	caaggcaaaag	420
atcgcttacg	aatcgggtca	aaggaacacc	ggcgggtcga	aaagctggta	aaagatcaga	480
tcatttcgaa	aaggaatacg	aacagacttg	cagggactat	cagacagcca	agaccatatt	540
gaagcccaag	catccggcac	cgggtcggga	ggggtcagcg	tggcgtctct	atgagcggat	600
atatcaaaaa	ccgcatggtc	aaccagggcg	aatacgttcc	gtaggccaac	ccatagccac	660
cgtgtcacia	aaccgcccgt	tgcagcacgg	gcggaggtat	cggagagcca	tttcaagaat	720
gtccgcaatg	tctccgtgcc	aacttccaga	cttcatacga	caacaagctc	tacgagctgt	780
ccgactgaac	ggaaggctgc	tctcgttcgg	gcgtgcattcc	acacagtcac	cctcatcccc	840
gttacattcg	aattcgacaa	tgtgggcgat	gtcgtaccgc	gcctttcgtc	actgtgtatc	900
tgctctccaa	tactcaggaa	gaagttctct	cgttcccgtg	tcggccatta	ccgaagagca	960
gggattgcac	ttcgtctatc	gcgggttgcc	gaagaggagt	atcagaaaca	agaggttacc	1020
ctcgggcagg	caacggacgt	cgtgtgcgaa	tcctgtccgg	actgaaagcc	ggagacaagt	1080
tgtgactcat	ggagtatatc	aggtgaaact	ggccgctact	tcgtccgaat	gcctgaaggt	1140
catactcact	aaagagagag	gatattcgat	catgctaaca	agatcattcg	gttctctctg	1200
aacaaccggc	tgaccatatt	ggtagatccg	tactgctgat	gctggtcggc	acctatacgg	1260
cctccaatat	ggagtggacg	tattccctga	cttgaacgct	cctaccgtcg	tagtgatgac	1320
ggagntaccg	gtatggcacc	cgaggaagtg	gaacgcctcg	taaccttccc	cgcgagacgg	1380
ccgtcaatgg	agctaccgac	gtgcgtcgcg	tgcgtcgtc	tcactacgg	gcttctctat	1440
cgtttgggtg	gaattcgact	gggggacgga	atttatcgtg	ctcgtcagat	cgtgtcggaa	1500
aaagctggcca	tggtcgggtgc	gatctgccgg	acaatgtggg	caaacctacg	ctcggcccc	1560
aatcctcctc	ctcggcgaag	tcattgattat	cggacttacg	gccgacagca	cctctctcaa	1620
gacctccgta	ctttggccga	ctggacgata	cgtccgcgct	tgctctgata	ggaggtgtgg	1680
cacaggtgac	agtactcgga	ggcgacatca	aggaaatcag	atactgctca	atcccgaag	1740
gatgaagcac	tacggtatca	cgtgccgaa	gtacgtgctg	ccgtcgacca	aatgaaccgc	1800
aatgcatcgg	gtgcgtactg	tatgaatacg	gcaacgaata	tatcatttgc	ggactcctct	1860
cccgaacgat	gctgccgcat	tgggtaagac	actggtaaaa	agtctcgatg	aattcccatc	1920
atgctcgaag	gcgtggcgaga	ggtaagggtg	ggcaataagg	accgaagtgt	ggccttgctt	1980
ccgagcgagg	acaatctgcc	gtactcgtgc	catcaccaaa	cagccggcga	cgagtacact	2040
ggagctgacc	gaaagggtga	tcgctctctg	gccgatctgc	aaaaggctct	cccctccgat	2100
gtgaaaggag	tacagacata	ttccgtcaag	agcgttttcat	cgaaaattct	atcagcacgt	2160
acgaaaagct	ctgtacgaag	gaggcatatt	ccgtcgtcat	cgtatatatt	ttttcctgat	2220
gaatgctcgt	gccacgaatc	atttcgctgg	tcacattccc	ctttcgtctg	ttgcattcct	2280
tttgacactc	aaactgatgg	gacgaccatc	aatacgtatg	gtctcggagg	tatggctatc	2340
gccatcggtc	gcggtggacg	atgccatcgg	gacgtggaga	atgtatacaa	acgcctgcgc	2400
gaaccgtatg	aagcctgcga	agaacaggac	acgggtgctca	acg		2443

(2) INFORMATION FOR SEQ ID NO:630

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2971 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...2971

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:630

gactaaggaa	ctgctcgtcg	acttttagagg	atcccccggt	catgcccgtc	tgccccattt	60
tggcgatcat	gatacgcggc	tgacggcctt	ctttctttca	aactttctctg	ccaattcttt	120
ggcatgggcg	aagtctttat	cttctccgat	tcggatgagt	acacgcctga	aatagttctg	180
attactgctt	tatatctccc	acaaccttct	cacatgcgtc	cgagatctca	cccaaagagg	240
cacgcgccct	gcagctttga	ccgcaaggtc	gagcaggtta	ccctctttcg	tctcacgcat	300
ttggtgatat	cctcaagggc	ttcttgcacc	gctttctcat	cacgtgagag	cggagatcgt	360
tgaggcgctc	tatctgctgc	ttacgaacag	cctattgtcg	atctcaagaa	tatctatagg	420
atcctcctta	ggcagacgat	attgtttacc	cccacgataa	cctgctgggtg	cgagtcgata	480
cgagcctgtg	acggggcagca	gcttcttcga	tacgcagctt	gggtagtcgg	gtctcgatgc	540
ttttgccatt	ccgcccattct	cctgtacttc	cttgatgagt	gtccacgctt	gtgtacgagt	600
tcgttggtca	ggctttccac	atagtaggag	ccaccccggt	atcgatttcc	ttgcagacga	660
gagtttcctc	ctggatatag	atttgggtatt	acggggcaata	cgtgccgaga	agtccgtcgg	720
cagggcgata	gcctctcgag	agcattgggtg	tgcagcgact	gggtatgccc	caaagcggct	780
gccaaagcttc	gatacaggta	cgtccgacat	tgttgaaagg	atcctgctcc	gtcgcgacca	840
gcctgacgtc	tggctgtgtg	tgcgacagagc	caatgacttg	ggttcttcgc	cccgaagctc	900
ttcacgatct	tggcccatag	gaggcggtgc	gacgcattct	ggcgatctcc	atgaagtgat	960
tgacgccgat	ggcccagaag	atgagagacg	aggagcaaaa	gcatccacat	cgataccggc	1020
atcgataacc	ctttgagata	ctgcataaccg	tctgccagcg	tataggccat	ttcgatgtgg	1080
cgggtggctcc	tgcctcttgc	atgtggtaac	cggagatcga	gatcgaatga	acttgggcat	1140
attctgagag	gtgtactcga	agatgtcggc	aatgatcgca	tcgagaattc	gggcggatag	1200
atataagtgt	tgcgcacccat	gaacttttga	ggatgtcgtt	ctggatcgtt	ccggccatct	1260
cttcgagctt	tgtcctgtct	ccagtcgggc	attgatgtag	aaagccagga	tgggcaaaac	1320
agcccgttca	tcgtcatgga	aacggacatc	ttgtcfaatg	gaataccgtc	gaaaggactt	1380
tcatatcttc	cagcgagcaa	atggaaacac	cggccttgcc	gcacgcgcca	ccacgcgcga	1440
atgatccgcg	tcatagccgc	ggtgcgtggc	aaatcgaatg	ccacggacag	acccttctga	1500
ccggaggcca	gattgcgaca	tagaaaagct	tcgactcttc	cgcgtagag	aatccggcat	1560
actggcgata	gtccacggac	gcatgggata	catgccgcta	taggggcctc	gcagggaagg	1620
ggcagaccgg	atacatagtc	gagatgtctc	atgccttcaa	ggtcgtcttc	gtatagaggg	1680
gctttaccat	gatttgctcc	ggagtacgcc	agtcaccacg	atgccctttt	cttcgcccca	1740
gcgcgtagca	tccttagcca	cgaaccggcg	gacttaatat	cgatgtcttt	ataattaggt	1800
ttcatctttg	atttttgcct	tagggatgga	tactaccgaa	taccgaattt	gtcgttgaag	1860
gccgaagcgt	ttcgaggaca	ttggacttca	catgcacata	attccggatg	ctttggcctc	1920
aagatccgcc	atacaagccg	gtgcaccggc	cactacgaac	cggcacggcc	ggcaaggata	1980
gtcgaatgca	gccggagcgt	actcggcatt	tcacgtcac	tggagcagag	caccacgata	2040
tcggcttttg	ctgccaatcc	gcatccacac	cttcctccac	ggacttaag	cccaaattgt	2100
cgatcagttg	tagccggcac	agccgaagaa	ggttgcttgag	aactgagagc	gtgccaacgc	2160
atggccagat	tgccgatagt	gagcatgaag	acgacgggcg	ttttgcgctc	ttttccgttg	2220
cgagacggag	agcttcgaat	tcggatgctc	ctcgctgaag	ttcagggggt	cgatggattt	2280
gacacagtta	cagtcattgt	ctcctgagca	agagtgatct	tgtcgccggc	aacttccgtg	2340
aaattgggga	acggttggtc	ccgaggaaga	tctcgccggc	agtcgccacc	gactggtggc	2400
gttgatattg	cttgcatgtg	cagccttctg	aatgcttgct	gtctcagcag	ctgagtgaag	2460
ccgcccgcct	cctctacgga	gaggaacagc	ttccacgctc	ctctccaatg	gagttggtca	2520
gcgtctcgat	ataataagat	ccggccgagg	gtcgataacc	ttgtcgaagt	ggcattcctc	2580
tttgagcaaa	agctgctgtt	gcgagcgata	cgctccgaga	agtcacgcgt	ctgctgatag	2640
gtgacacgaa	aggcaatacg	gttatggagt	ccactccggc	tatcgctgca	gacatgtttc	2700
ggctctgtgtg	cgcaggagggt	ttacgtgtgc	atcgaaaacg	gtctgttcca	catggacgtc	2760
gtagcatgct	gggtggatctt	ggccgtttcg	ttctgtactg	atcgccatac	gagcccacga	2820
tctgagccca	cagccagcga	gcgcacggaa	cttggctatc	tccatgaagt	agttggatcc	2880
tataccgaag	tgaacttgat	acgtgaagcg	atttcctccn	gctttagacc	ggcatcggtc	2940
gcttgtccaa	cagctctgcg	ccccaaagcca	a			2971

(2) INFORMATION FOR SEQ ID NO:631

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 441 base pairs
(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...441

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:631

cgggcatggc	catcggcaat	atcgtaggta	gcaacctctt	caacatcctc	tcatacctcg	60
agtcagttcg	tccatcagcc	ccatacggat	ccaaggcata	cggtcgtgga	ctatgggatt	120
ttcattctat	cggcaatcct	gctctacttt	tcggcctttt	cttcggagac	aaaacgatca	180
aacgcttcga	aggcagatcc	tcttatcgct	cttcatatgc	tatacgggtc	atttggtcat	240
gaccgctaaa	gaaagccata	cggggaaaaa	tgcgcaagaa	aaggctcgac	gccatcgccg	300
gcatattctg	cggagcgaaa	tctccacca	agaggaaact	caacagcctt	gctgtccgaa	360
gacattcccg	tatcgcaggc	cacactttca	cggatctgga	aatcctcggc	atagaaaaat	420
cggcctcgcc	ttcagggaaa	a				441

(2) INFORMATION FOR SEQ ID NO:632

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1274 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1274

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:632

ggacgatata	ttctctttca	cgccacgtag	tttgcacgga	cattgatttt	tcgagatcaa	60
gttcttagca	attttaagt	aagatattcg	ggatctgacc	gtttttacca	gttagatgat	120
ctctcttctc	ccctaccga	tttgtcgata	tcgtttccgt	tttgatccg	gaggaaaaga	180
aaattcctca	tttctaatat	acgatgcata	ttcgagagaca	ttgagagagt	tgagagacag	240
gctcaaaaag	aaacaaacga	agacgccagg	atcgaaatcc	gcaatgaaag	tttgaggagg	300
aagacatagt	ccgtaagcga	ctttctcgcg	agttgtcccc	ttagctggag	gattgggtac	360
agctctggaa	ttgttgggag	cgatagatct	gtattagcaa	aggtcaaact	attcattcac	420
cttgatgga	gtaaaccggg	tctggtcata	gtgttacgaa	ctatatggga	ctgggtacatc	480
cacatgtcct	agcctcctgg	ggaaaaaagg	agaaaagtgc	cagccggtag	atatagccca	540
ccctctctgc	caaccttaat	taccgggtgct	aacatggcag	gaaaaagtgc	ctgttgcaag	600
gagttgcatt	agctcagatc	ctctatcaat	atggctttat	gtgccggcac	aaaaggcaga	660

gatatgccct	gtagaaaaag	tgatgcttca	cttggagatg	cacaagatat	tagacaaggg	720
ctttctcttt	tcgggcggaa	atgatgtgtc	tttcgtccat	tgccgatgag	gccagacagg	780
gaaacaacta	ctcgttttag	tcgatgaacc	tgcaaggaca	acgaatcctg	tagaggacaa	840
gccattgtca	gtggactatt	ggctatatgt	agcaggtata	agtccgatct	ctcgtcacta	900
cgcattatgg	cagtatagac	attccatgtc	gcgcttgaaa	gtgcgtgggt	ttagagaaga	960
caaagtgaac	ttacctctac	agtaaattcc	ctcagcaaat	gtgtggacta	tacgcttgaa	1020
gaagtgagca	aaacgatgtt	ccacacgaag	caatacgcac	agcagagatc	cttggggtaa	1080
cgaggctctt	atgacagaat	gcaaacagtt	tttgaacaac	acgaaatgca	taaagcaaga	1140
atacatatca	taagtatgca	aaaaagtaaa	gtcggattga	tttctccaag	gtagaatatg	1200
ccagaagcat	tgccggagaa	atagcggtaa	cgtacagaca	ttcgtcgaac	aatacacgac	1260
tgtagccgtg	gaac					1274

(2) INFORMATION FOR SEQ ID NO:633

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 601 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...601

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:633

ctgccgtcga	ctttagagga	tccccggcag	cgctcgcaaac	tgccggaaaag	tcaaagtgcac	60
ctctccccc	aaaccgagtt	tcagccttgg	gaaagttgaa	tatcggttcg	accgagcatg	120
caaaaagcaa	agaacgatta	cggcacatag	tcagtgtttt	gaaagaagac	ttccatggct	180
ttgcgacagg	ctcgatgggtg	cgcctgatct	gaatacggta	cttacctatg	ccttcccggg	240
cgaatcgaat	atccctggat	taacttcaaa	ccgggttata	cccagcaaca	gggtgggggtg	300
gagccaatgt	atggcaggcc	ggtgggtactg	tttgccctcaa	tgcgatggag	agaatttctc	360
tcacctgaat	acgcctatgc	tcaacgtttc	cgctatcaga	acattgccat	cgttcgcttc	420
gatggagtat	ctgattctct	ctctcctgct	tgattcggga	aatcagaaca	ttgccatcgt	480
tcgcttcgat	cccgtacggc	ggaaggaatg	gccaatcaga	ttatgataga	agcggccgaa	540
cgttcaatat	gaagtcctac	atgggaatct	gctcgtgctt	ttcctttact	tccggttact	600
c						601

(2) INFORMATION FOR SEQ ID NO:634

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2269 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...2269

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:634

ccccggatac	tcgttcataa	gtgatggcag	taccggcgtc	gatcaccaga	attcgggtatt	60
cggatagaga	ctatgcgctc	cgaccaccgc	agccagtcgt	cggcacccaa	agtgcggcga	120
tcatattgca	ggcgaagggg	tacgggggtct	cagtccccc	catcaaggaa	gcagctgcac	180
aacttctcac	aatagctcag	cctcttcgtc	gggaagcccc	acagatgagt	agatagcctt	240
gtcgaacggt	gaggagcgac	gagatggctg	agtgcctgtc	cggcttttcc	cggcgaaagg	300
aaatgctctc	tatactatta	tttcggacga	aagcaacctt	acagcagaat	tggccttgat	360
cgacgatcag	attgaaggac	atgggttttg	ggagggggaa	tcggaattat	tttgattaag	420
cagattagta	ggattgctaa	tgcggatagt	gcgcgactcg	ccatgcaaca	gatccatgag	480
gaggagacgg	cactgagagt	ttcttcggcg	ggtcttccca	agaggatttt	gatggcttcg	540
ctgccatcat	aggatccaac	ggcaccgggc	aaggctccga	taacggctgg	ggcacttcct	600
cgggagccgc	ttcgcgggag	ggaaaaagat	ccgaatacgc	accggatggc	cataaccgaa	660
gacagtgaat	tgcccgcgcc	atccggaata	ctgccatata	tccaagggaat	tccgagagca	720
agagaagcac	gatcttcaaa	tagcgcgtct	cagcattgtc	cgaagcatcg	ataataaggt	780
tgcctgcgcc	gccaacatct	cggcattcag	ctccgtaaat	ctttcgggtg	aagttccgga	840
cggcaatcgc	tattcatcgc	ctgcaaacga	gctactgccg	catggctttg	ggctgtccca	900
aatcggcttc	ggaaaagagc	acttgacgtt	gagattgctg	atgtcgacgc	gatcatcatc	960
gacaacgctg	atatgcccc	gcctgcagca	cagagatatt	gcaggacagg	gcaaccaagg	1020
cctccggctc	tatgacaagg	acatgcgaac	catctaattcg	ctgctgtcca	tcggctccac	1080
ttcgggaaga	gccgtctggc	gagcgtaacg	ttcggaaaag	tttggttcat	acaaatgaat	1140
cggatggagg	aaatgccgga	gggaaaaccc	aattgtcagg	ctttccctcc	gaggccccaa	1200
accattctct	attaatgac	gtaagaaggg	aagaacggat	cgtcattcgt	gcgatgacta	1260
ttcagcccaa	agagagccaa	atggcagatc	gtgtccacag	cccgccgcat	ggagtcgagc	1320
gaaagtattc	gaacttgccg	tggaaagtta	tcccaccggc	aaatatattc	ggcacggggag	1380
tcccatataa	gagagtctgg	ccccgtccgt	accgccgcga	aaggctgcac	cttggccgtt	1440
atgccggcaa	gcttcatggc	agcaatggct	tttcgataat	ctcgggatga	ggctctacca	1500
tctctcgcat	attgtaatat	gatctttgag	ttcagagcag	acgatgtccg	agccgtactt	1560
gcggttgagt	agtctacggc	agcttttgatc	agctctttct	tctcttcaaa	gagtttgggt	1620
cgtgatcgcg	gatgatataa	gatgccgatg	ctttctctac	cgaaccttga	tgccgataag	1680
gtggaaaaat	cccttcgtagc	cggcagtagc	ctccgccgca	tagcctcggg	cagaagagca	1740
tgcagatcgc	acactacctg	cagcaattga	ccatctttcc	cttggcatag	ccgggggtgga	1800
tattgcgtcc	gttacgggtca	gtttggccga	agccgcattg	aagttctcat	actccaactc	1860
tcttccatac	tgcctgccat	cgtgtaagcg	aacttggcac	cgaaccgctc	gcacggaagt	1920
gatccactcc	ccgaccgatt	tcctcgtcgg	gagtaaattc	aggcgaatct	tgccatgctt	1980
gacttcggga	tgtgcgagca	gatactcgga	gccgtcatga	tttcggccac	accggctttg	2040
tcacgggcac	cgagcagatg	gtaccgtccg	tagtgatcag	cgtatgccct	ttgaagaacg	2100
ccaactcggg	aaatccgcta	cacgcatagt	cagttcctcg	ttcagacgaa	tatcgcgcca	2160
ttatagtttt	tgatgatttg	cggcttcacg	tccttgccgc	tcatgcgggg	gccgtatcca	2220
catgcgcaat	gaatccgatc	acgggcgcac	gctccaaccg	ggagaggca		2269

(2) INFORMATION FOR SEQ ID NO:635

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 970 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...970

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:635

cgggtcacca	accagcgcga	acgattgctt	tcgggcgaga	actttccac	ttcatatact	60
cttgctgcac	cagtaccatg	accatacaaa	tggcaaagcc	gtaccgataa	tgccgataac	120
gctgagcacc	ggattctgcc	ggatgattgc	cacgattgtc	tgatatactt	tttcattggt	180
tctgtctctt	gtgcgggtatt	tcgatggatg	cgggaaggcgt	ccgaatggga	aggggagAAC	240
ctctgcccga	gcctccggca	ccatctttgc	gatatgcttt	ttctatcctt	ttggagggcc	300
gaatcaaaact	atatactttg	gtctgactaa	actatatagt	ttgtctgacc	gaactatata	360
cttttggttga	accaaactat	atactttggt	ttgtcaaact	atatagtttg	gtttagcccc	420
cttttgaggt	cgattcgggc	actctcaaga	ctggtcatta	aaaccctgta	tttcaattga	480
ttaacctacc	gatgcccgtc	gaacattcgg	atgggtccggc	tcgtctcccg	ggcttgcaat	540
cgttggtgagt	gaccatgacg	atgggtacgtt	ccgtcctctg	tattgagcga	tgaaggatac	600
tcattacttc	cgtcccccatt	ttggaatcga	ggttaccgta	ggttcgtctg	caggagataat	660
ctcgggattg	cctacaatgg	cgcgggaatg	gccacgcgtt	ggcattgacc	tccggagagc	720
tgttggggat	aatgggcagc	cgatgcgtca	tttccatgcg	ctcaggagact	tcgtacgccg	780
ccttctcctt	ttactttcgc	tcatgcggcg	atagaggagc	ggcagcatgg	cgtgtccagc	840
acgttgagcg	tattgacgag	atgaaaactc	tgaatacga	atccagcttt	tcattgcgga	900
aagcggccaa	agccttgtcg	ttcatggagt	gaccgtttgt	ccgaggattt	ccaccgtccc	960
cgtggttagga						970

(2) INFORMATION FOR SEQ ID NO:636

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 551 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...551

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:636

tcgacttttag	aggatccccg	tgctgatgtt	catcattcca	tacatcattt	tttcttgacg	60
gacaggagtg	ccaagagcca	gcccaagaat	atcattctgc	cttgctggta	ggaggagttt	120
ctttggcagt	gcagtatgct	tcggcaccta	tctggggagca	gaaacgccgg	ctatatccgg	180
tagtattgtc	gctatatcgt	cattatcacc	tttgccaaat	tgacggccaa	gaaagctgca	240
gatcgctgtg	gctcttgaga	agtacagcgg	caagcagatt	ttcgaagcat	ggagggtctat	300
ctctttattc	tattcttcat	tgtgctggcc	agccccggtga	gtgtcccgtg	agcgatttcc	360
tcaagtccaa	tttggtatca	aaaaatagtc	tgctatctac	catgaaggta	agacgggtcaa	420
tttcggctgg	cttaagcaat	gaggctttat	gctcttcctc	ggagctttta	tcggaagctt	480
tgggtacaagg	gtttcagccc	ggaaaagctat	tcgccatttt	ggggaaaacc	attatcgggt	540

(2) INFORMATION FOR SEQ ID NO:637

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 764 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...764

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:637

ttctataaaa	ccaagccacc	tttcatagaa	tatagcaagg	tctggctctt	atgatcagaa	60
ctagaaatga	ctttatctga	tgctatatat	tgggtaaatt	aaatctttca	tcaagtaacc	120
atagattatg	atcctcatat	cggatttcct	atcatcctta	atcataggaa	atattagggt	180
atgcatttca	ctttcttatg	tgattttcca	ccatctattc	ttttacgcaa	atcatcaaac	240
aattcattat	tctacgtctc	tggcaaacat	aatgagccaa	atcattctta	gctgttctgt	300
tacatttttc	aagattttat	ttgcttcac	ttctagtgcg	ctacgcaact	ttcgtctccc	360
gatgagtatt	tatcttgcaa	ttcctttaat	gcacccctgc	atcttgctct	ttgtcaaact	420
ttattttttg	gaagcgcatt	tcaaatcaaa	ttctgaaact	cctattggaa	tagattccat	480
atctacgtct	ttaacaaagt	cttattccaa	gggtgctgtg	tatatacata	atgttcgact	540
tttgcttctt	atcattatat	cggttttcta	tgtcttcgga	aaaatacggt	taatggatta	600
atgaagtgtg	tttcattatt	ggttctcaga	taaatcaaat	aaaatgtcat	cttctttttc	660
caaaaatgga	aaccatctt	ctttctgtgg	tacnattttc	atctagatat	ttacccttgg	720
aacataccgc	ttttatcatg	gtagtccttc	tggagttcca	tggt		764

(2) INFORMATION FOR SEQ ID NO:638

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 598 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...598

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:638

caattctttg	atagctaaca	atgcgttcaa	atcatagaaa	tggcggattt	agacgataag	60
gatgccaacg	gatacctcgt	tatagagaat	cgaatgagga	aacagttttc	tcgcacaagg	120
tttgtctaag	ggacaacaca	ttcaactaaa	agggttcaagg	tggtattgag	tcaccacatc	180
ctccatattt	cgcttttcag	gtatgtgggt	acaaatggct	ctatcattct	tttttcataa	240
ggaaaggatt	ggcaaatgcg	ctgatttcca	caacaattct	cgaaggaata	ggattacaga	300
cacatctaaa	cccacctgag	catcatagga	gaaggcttgc	ttctatatatt	tgagcctttg	360
gatatatctg	aaaaggattt	atcctccgtc	aactggctgt	tacctctttc	atcaagttgg	420
ataaaagcat	cttaacttga	tgccactcat	attctcactg	atgacagcaa	agtccacatc	480
ctcagaaaac	gatcaatcaa	tagataagcc	ttggataagg	acgttccgcc	cttaaataca	540
tttgctgact	ataagagctc	ttggataatg	cacgaagtat	ttctgagaat	aatagtct	598

(2) INFORMATION FOR SEQ ID NO:639

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 445 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...445

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:639

gcgtagcccg	agtcgctgta	gggcgtagct	cgacccccct	tgggcatatt	tccgaacggc	60
tataaaacaa	tgcggtttca	atccaggaaa	aatatgcata	tgctgtttat	cagcatattt	120
cattttctcag	ttgaaagatt	tcagcttgag	aggcttcgac	atccgatgag	acttcaaact	180
ttttcccttt	cattttttag	cggttatagt	caatgccccca	acaagagctt	gatcgataag	240
gcggccttat	gagaatcggc	accgtatcgc	ttacatcgaa	cacacgtaga	tttacgagga	300
taaatccgtc	aaattcttcg	aaaggatttg	gtcggaaaat	aatgttttga	tggattctgt	360
tcttaaacga	cattgacagg	gtgaccggaa	ataaagcccc	aagattctcc	ttgatcgtcc	420
cgagaaaggc	gcaagcgccg	cgcaa				445

(2) INFORMATION FOR SEQ ID NO:640

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1210 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...1210

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:640

```
cgagacggag agagactttc gaagaagttg ctgcagttcg tgcgtgacac cggttcgatc      60
ggttgggagc attcacctat tcgcacgaga gcggcaccac tgcgacaaga actatcaaga      120
cgatataccc gaatccgtca aacaggacgt cttggcgaac tgatggccgt gcaggaacgt      180
atatccgccc ctcatacgag gcgaagatcg gcagccgcct gcatgtggtc atagaccgtg      240
cggaaatggc ttctatgtgg ggcgtagcga atacgactct cctgaggtcg atccgaggta      300
ctgatcccggt tcgtctccgg tcaggagttg aatcccgggc ggttttatatg gcggaagtga      360
ccggtgcaga gcctttcgat ctctatgcac gttagtggac tgataaacacc cttcctaccg      420
aaaccaaagc cagaaccgga tatacaacag gaactttgga ttgcacagtt ggctacggct      480
tcagggtgtcg tgtatcgacc tcgaacgaac tatggtctca ttactgtcgt ttgatgggga      540
gttcctcacc aaaggagacg ctgtacggca agatgggtatc ggcttggtgca ggctgtaaaa      600
gcggatgaat atgtaggaat ccgtccggac ggctcactgt gctgggtaccg ccgaggatag      660
aactccggct gacgtcttcg ggtgcccggc catccgagag acgatccctc atgctcttat      720
agacttggtg ccttaacgga ggaagtcgtg atgcgctggg ggaaggctat ccccgaactg      780
ctttggagct tctccgaaga ggacaccccg tatcctggtc gcagttcgga cgctcgagcc      840
ggtgaaagaa ggcgatgctc tgacaggata ccgcttcacg gcgaaggaga gttgtcggag      900
ttgctcaaca gacctttctc catgttcccc cagtcgattt gttgccgacc ggagagatac      960
ccgataccat tacccaaccg ttgtcgaaga aggggtttcg ttcgtttcat tgcacgaaga     1020
gagccaagag aagtcgcaga gcctcaagag atccccgtcc cagccgaaag cgataaccgt     1080
catcggtaca gacggaagat gatatacttc ctacacctgc cgaggagaag ccttgacgga     1140
ggagccgctt cccgatacgg aggaggtatc acagccgcag cggaggagcc tttcgtcccg     1200
atcgaagagc                                     1210
```

(2) INFORMATION FOR SEQ ID NO:641

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1471 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...1471

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:641

```
cgacagaaaa gtctgttcaa tgggcgggctt attgagatta tggaactttt taggcgagga      60
atccgagtag gataccggca gcaactgccg agccgatcca ccggctacat taggtcccat      120
agcatgcacg agcaggtagt ttgtcggtcg gcctttaggc cttcgatctg tgaaatacgt      180
gcagagtcgg gtacagagaa acccctgcat tgccgatcaa tggattgagc ttgtgtcgca      240
agaagggttg agaattctca cgaacaaaac accggccatc gtagcaatga tgaagagaaa      300
gctcccaaaa tgaaaatctt gatcgagttc catgtcagga actagtggcc tgggtagaag      360
ctcccaccgt aacgcccaca agaatggtaa tgcatcgatc aacggggccac gtgccgtctc      420
agccaaacgg cgagtaacac cttttctttc aaaatattac cgaagaatag cattcccagc      480
```


aagggcaaac	cgaaggcaca	agaaaagtag	taagcagcag	ccccacgac	gggaatatcg	540
cttctccgta	gtagacacgg	cacgtggcgg	tttcatccga	atcatacgtc	cttcttcgtg	600
gtcagaagac	gcataatagg	agggtggatg	atcggcacaa	ggccatatag	gagtatgcag	660
agactgcaat	gggcacccag	caagttggag	ccaacttggg	cgagagaaaag	atagccgtag	720
gcccatctgc	tcctcgataa	taccgatagc	accggcctga	ttgggttcga	acccaagata	780
caaaccaata	tgtaggcacc	gaagataccg	aactgcgccg	ccgcaccgat	caaatacagct	840
tcggattagc	gataagagca	gagaaatcgg	tcatacgacc	gaacccaaaa	atatgagtgg	900
cggataccat	cctttagtta	ccccttgata	gggatattca	gcaccgatcc	ttcttcgtaa	960
ataccgatct	gcagaccggc	tctttgaagg	ggatattacc	aatgaggatt	ccaaatccga	1020
tcggaatgac	aacataggct	caaactcata	cggatatggc	agaaaaatga	atagcaatcg	1080
accagaatca	tcaccaagtg	gccgagtgtg	gcattggcga	agcctgttaa	gagaggaata	1140
cctcgatatt	gtttgctaag	aagctgccga	atccggcata	tcattagccg	attataacga	1200
tatcagaacc	ctcgaggatg	gaatcccttt	gttgaccttc	acggcaacga	ttttaccgtc	1260
tcgatccgca	ttgaattatt	ttccatcttc	atggcttcga	gaacagcaac	cttttggccg	1320
acctgacttc	gtctccgacc	ttaacgcaaa	cgtcaaggat	gacaccggga	agggagactt	1380
gacgcctgta	ccttgtcctc	cggctgaaac	tgcaggagca	agggcgcagc	tgctacaggt	1440
gcagccgtga	cggtcggatg	tttgattgca	g			1471

(2) INFORMATION FOR SEQ ID NO:642

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 724 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...724

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:642

ggtgccttga	tttccgtttc	ggcaacgccg	ccatgcaatt	tgagcgcgcc	agcgtggcca	60
cgaggacggt	aagcttgggt	gcgacaccca	tttcccgaat	ttgatgtcaa	ggaatttttc	120
tgcaccaga	tctgcaccga	aaccggctcg	gtgacggcat	attcgccgaa	agagagagcc	180
atctttgtgg	ccaagaggag	ttacagccat	gtgcgatatt	ggcaaagggg	cctccatgta	240
caaataccgga	gtgtgctctg	tggctgttac	cagattaggc	tttatggcat	ctttagcaag	300
acggcaatgg	atcctgctat	gccgaggtct	ttgaccgtaa	aggagcacct	tcctttggtat	360
agccgagaag	aataattttca	agacggctgc	ggggctttca	aagtctttgg	ccagacagag	420
gatagccatg	atctcggaag	cggcgtaatg	tcaaaaccgg	tctggcggag	tattccgtcc	480
gagatggtag	caaccccgtg	acggcattgc	gcaaagagcg	gtcgttaacg	tccagtacag	540
cttccaaagt	atttcggaga	ggcgcgcga	agtattgcgg	ttctgataat	atagttctcc	600
aaaagagccg	taatcatgtt	gtgagccgaa	atgacagatg	gaaatcaccg	gtgaagtgga	660
ggttgatgtt	ctccatgggc	agtaccgtgc	atagccacct	tcggcagccc	ccctttcata	720
ccga						724

(2) INFORMATION FOR SEQ ID NO:643

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 390 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...390

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:643

gcatccaaaa taattttaat caaaagtaaa agatgaaatg cttctttatg ccctgattgg	60
gctgttggttc agtctgaata catatgctca gcttccggcg ttagtttgaa aaatatcgaa	120
ggaaaaacgg tacagaccaa caagttgaga atgccggaaa gccgatgatc atcagctttt	180
ttgctacgaa ctgcaaccct gtttgcgcgga gctgaaagcc attcaggagg tatatgcaga	240
ttggcggacg agacgggctg aaggcttata gctgtatcta tcgatgaggg gcaaatgcac	300
agaaggtgaa acctctggct gacggcaacg gctgggaata cgagtgtctg tcgacagcaa	360
cggtgatttc aaacgtgccg tgaacgtgac	390

(2) INFORMATION FOR SEQ ID NO:644

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 882 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...882

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:644

gcggaacattt gcttctggct gcggtggata cggcttttta tttggtacag agcgcaaaca	60
ggccgatcgt actccgatca atgaccgctt gcacaggcca ataccgaatt ggaggctttt	120
ctaagtcgct attagtcggg agagaggcta ctatcgtttt ttctttctcat tcctttcatc	180
ctttgtttct ttcttttctt cgaggctctt gccgtgatcg gccttggaca cgtgtgttgt	240
aatacgctac ttactaattt caaagaatac aaacagaaat gggaatagga acactttatt	300
atttactttt ttggggcttg tagccggtgc cactgccgta tggatgatcac gcggacactg	360
ctcaagcaaa ggacagaggg gattctcgcc gagctcgccg tgaagccgag gtaatcaagc	420
agaagaagct cctcgaagtg aagagaaatt tctccaactg aaaggcgacc tggaaaagca	480
ggtggcacag gcaatagcaa gctccaatcg gtggagagca aactcaaaag ccgcgaacaa	540
ccctcaacca acgtcaggaa gatataacga agaaggggca ggaaatgggt tgatgccgtg	600
agaatctgac tgctcaactc tctgtgattg aaaagaaaag acggaactcg acgagctgaa	660
aactcgcgaa caggctcatc tggagtcttg agcggactct ccgctgccga ggctaaagac	720

agactggtgg aaagctcaaa gatgaagcca aaggacaagc ctctgcatac gtcaatgaga	780
ttatgaagag gccaaagatga ctgccaacaa agaggccaag cgaatcgtca tccatccatc	840
cagcgcgtgg ctacggaaac ggctatcgaa aactccgtga cc	882

(2) INFORMATION FOR SEQ ID NO:645

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 490 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...490
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:645

ggcttcaagt cgcgatcaga catgatggct ccttcgagtg caaatgccca tcgaagattt	60
tgatgcggca gcgatcatat tcgccaacaa aagtcttgct tcatccaacg tagctttgtg	120
ctcgggaaaag tgggacataa gtccggggacc cttcgatcgt accggtagcg tatgtacttg	180
gaccaatcct tacgctgctc ttgatttcga tcgttgccgg cacaagagaa agagaattat	240
caccccttca cctcttttct ccaagacctt agcatggaca gccagcgaga attgttctcc	300
tcatccaata tgctgctatg tttttcaagt ccgggcagaa tatctcttct ctatcgggtc	360
atcatcttgt ntgatggcca tcagcatagc cgatcgtctt cttgcacgag gcggagcata	420
attccacggt tcattgcggc tcggtgaaag ctccgttgga tgtcggcagc caagtcaggg	480
aggggacagg	490

(2) INFORMATION FOR SEQ ID NO:646

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 350 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...350
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:646

agtattctcc	gcaggaacaa	gtatttttag	gggcatcctt	gaaaagggtga	agcaccgctt	60
atgtatggag	atcgtgaggt	atgggggtatg	gctcgtgcag	cgaggatttc	ttttttatac	120
ttcccgttac	ggatgacctc	actcccggct	tttctataac	cgtcttatac	acgaaccctg	180
ctttgtgtca	gaccaagaat	aactgagtat	ttcaaattcg	ctcaagaagg	tgattacatt	240
gaagtgaagg	aagctctgta	ttcatggcga	atcttttgta	ctatcgtttt	ttccgacaag	300
aattacctnc	tataatgctc	ccattgaagg	tgttgcgagc	aagcgggaaa		350

(2) INFORMATION FOR SEQ ID NO:647

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 382 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...382
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:647

ggaaaaat	ctgacgaatt	tgagttggag	tccggacgaa	aatatcttga	tgtagctgag	60
gtgaatcgtg	ctcaaaacga	atgtgaggta	aatgcctaga	cgctgagacc	ggtagattcg	120
tccgtacgct	ttttgttgaa	accgataaca	ttatgtagag	ccgttacatc	ccctgacatt	180
ccttccggga	agtaacatca	gttcatttgg	cagagccgct	gcgacgggatg	gaaccatctc	240
tatcttatga	tactacaggt	cgtctgatcc	gtcagggtgac	aaaagggggag	tgggggttac	300
aaactttgca	ggcttcgatc	ccaagggaac	acggctctat	ttcaaagtac	cgaagccagc	360
cctctcgaac	gccattttta	ct				382

(2) INFORMATION FOR SEQ ID NO:648

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 2194 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...2194
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:648

tgtccactgc	ataattgcc	tcatgtggca	taatagcgaa	gcgattnggc	atagggcgac	60
aaggagcgac	agcccccttc	aactctgcaa	gatcgaaaag	gcatcgatag	tttcagcact	120
gaccaaagga	cgtaccccg	catgaacgca	accaaaccac	catcagggac	aacctgcaat	180
ccattccgaa	cagagggaaa	cgtgtatttc	cacctgcaac	cactcgatga	gagaccgaaa	240
agtcaacttc	cggcacaatt	cctgccaaata	agcatgatga	tctgtgggca	atacaatata	300
atagcatcga	catgaggggc	aaagcgatc	agcgtatgca	tcacaccggt	agaccggcca	360
aaagcaaaaa	ctgttttggc	cgatcggccc	cctacgtagc	ccatgaccac	cggctacgat	420
cagagcatag	cgtttttgct	catgagagtt	tggccatgag	ttcttcgatc	tgcttgctgg	480
ctactgtcag	ttctcacgac	agaaaccaat	cagagcaata	gcctcttcgg	ccagcttggc	540
agctcgtcca	catccgggct	ttcatgttcg	atgacacgaa	cgattttctc	aggcgtctca	600
tggcctccgt	ataagtctta	ttctcactca	taataatgca	aaaataagga	tttgagaag	660
aaaccgtaaa	cgaatcctcc	ggatcaactc	taaaaacaga	tgagaaatac	tagaagtagc	720
cgaatgagta	aaaaactcgc	ccctaaggga	ggagggttcc	gtttttgtga	actcacccca	780
ataatccaaa	gatcaattcc	ggtattgcaa	gaccatctta	acctgtcttt	cggccctata	840
tttcgatctc	accacaagaa	aaaactaaaa	aaatatatca	tccggcatta	acataaaaagc	900
ccactatcat	gtttttaaca	aaaaactatt	atattgtagt	agacaaatac	aagacactat	960
tatgattaat	atacatcgc	actaactatc	ctgacatttc	ttggatgtgt	ctttatgctc	1020
tcagccaaaa	gattaatgta	gattcccctt	tccaaatagc	ggccgaccgg	actctttcgc	1080
cacggaaaaa	aaaaaaagg	atgaggagat	gggcaaacag	ctcgaacgca	tcaacaagtc	1140
ggtagtgcag	ccgatgcata	ttccttagcc	atcaagtctg	ccgtgatggg	ggctcgaccg	1200
aagagcttcc	atttctgctt	ttaaatatgc	aacctatggc	actcatgcag	gtcgttatag	1260
caatgcaata	atggtctaga	agaaataatg	aggctgctta	aagacaaaaa	cgacaacatt	1320
atatagcccg	cacttatatg	cagataggca	tcgtattttt	ctttcaggaa	aatgggatga	1380
ccgcattggg	attctatgaa	cgtgcgctac	aaatcgctca	aaagaaaaag	gaggaaagag	1440
gtatctctat	agcctacaac	aacatggcta	catttatcaa	aaaaaaggaa	atactcaaga	1500
agcctactcc	tattataaca	agctttggat	atacaacgaa	ccaatgggtga	tagtgtaagt	1560
atgtgcaaa	tctcatgaat	atcggcacia	ttatgatcaa	tgagaaaaat	cctgaggtag	1620
ctataagcct	ttgaaagaag	ctcttacaat	agcatccaaa	ataaatatat	cgagatccag	1680
gccttatctt	atgcacatct	tgcatattat	tatgctggag	aagcgaatac	ggcaaagcaa	1740
atgaagtgc	cacaatcgca	gaaatttggc	atgccatgcc	gggtataatc	aaaccagatt	1800
ggcaatattg	gattagccag	ttccatatat	gccgaatacg	gcttgtaact	tttggcttat	1860
gatgccaaaa	aagatccaaa	cttctggcag	actctattgc	cgccaaacag	agcaagaaaa	1920
aattacggag	tttgacattc	ggttcaaaa	caaagagaaa	aggccgaaat	agcactgaaa	1980
aaccaggaat	tacatttagc	tcgcaaatc	atattgccct	tatcataata	tccacactgt	2040
tggtggcaac	catcattacc	ttatcatcca	tgcagcaagg	agatacagac	aaaataagag	2100
actgcgaaaa	tgaatgacac	cagaaacaga	ctcctctcca	ttatctcaca	cgacataagg	2160
gtccggctat	agcacagaaa	atggccctcg	acac			2194

(2) INFORMATION FOR SEQ ID NO:649

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 388 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...388

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:649

ttttccaaag	agcggttcga	atacaccgcc	ggtggcatcg	aagcatgccc	atagaggata	60
gtatcttcgg	tgtggaagta	ttcggcaatg	gctttctcaa	ttctttgtgg	atgtcttgcg	120
ttccgcaaat	gaagcgtacg	gagctcacc	gaatccacgc	tcattccatcg	catccttggc	180
agcctgtatc	agccgaggtg	atcggacaga	ccgagatagt	tggtggcaca	aaagttcaat	240
acctctggcc	ttcgtttacg	cggatgtcag	cacgctgggg	ggtgatgatg	atccttcttt	300
cttgtagaga	ccggcttctt	cgatactctt	gagttcggca	gccagtagtc	tttcattcct	360
ttgtacatag	cactggagtt	ttttaggt				388

(2) INFORMATION FOR SEQ ID NO:650

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 651 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...651

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:650

atggaatata	tgatagcctc	gatgctcttg	aaggcatcgt	cgtctatgtg	atataccttga	60
tggcctttcc	cactcccggg	atcatggatg	caagctcttg	aggttaccca	tctttttgat	120
ctgatgtatc	tgggcaagga	agtcattaag	tcgaactgat	tcttggctat	tttctcctcc	180
agtttgcgag	cttcccttcg	tcgtattgct	cctgagcacg	ctccacaagc	gatacgatgt	240
ccccctgcc	aggatacgg	cggccatacg	ctcgggggtga	aaagcatcga	ttgctccatc	300
ttctcccccg	taccgacgaa	cttgatgggc	ttgtttacga	ccgacggatc	gagagggcgg	360
caccgccccg	ggtatctcca	tcgagcttgg	taggacaaca	ccgtcgaaat	ccaagcgtgt	420
attgaactcc	ttggctgtat	tacggcgctc	tgaccgggtc	tcgagtccac	cacgaaaagg	480
acttcgttcg	ctggatggca	gccttgatgg	cctctatctc	gcgcatcatt	tcttcgtcgt	540
ggccaaacga	cccgcggtgt	cgatgatgac	aacgtcggtc	cccttggttt	ggcttcggct	600
atggcgtgtc	gggctattct	cggaccggct	ttttgctgcc	cggttcgtctg	t	651

(2) INFORMATION FOR SEQ ID NO:651

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 833 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...833

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:651

atataaatgt	ttcgtccaaa	cctaagaggg	ctgcagtacg	ggcacgggtc	gctgtagttg	60
ttcgtagcgg	agattctgaa	ccacagccag	attgtgcttt	ttttgaacaa	acctatctcg	120
tatgccactt	gcatccgccg	agctagcatt	ccactatact	ctcatctatc	tgatcaatct	180
gcatgcgcca	agagatagct	cttcgtcttg	cttttcggat	tggcgccgtg	ggatacgcag	240
tcgccgagga	tttgggcaag	tacagtaggt	gttatctgct	ggcttgcata	gcttgagcct	300
tatccgggca	gcaatgcgac	tcgataatta	gcccgtcgaa	attatttcca	tggcttgctg	360
gctgacggat	tcgatccgat	ctctctgtcc	cgaatatgac	tcggatcaca	aaggatgggt	420
aacgaaggaa	aacgtctttt	caatcgaagg	gaatctgcca	atgtggagga	ttgcgaaacg	480
tcttggtcgc	taggtactga	atcctctatg	gatggctccg	atctgtcgaa	ctccggactc	540
cgaagccgtt	ctagggctcc	tgtccacaga	tccaaatcgg	gactgatcga	ttcttgacga	600
ggacaatcac	cgattcgtcc	ttgcctatcg	tatcggcatt	tcttgtagag	caaagggatt	660
ggatgtgggt	cgtgcacctt	accagatatt	ctgataccgg	cttgcatggc	ttgctctacg	720
tgttcgcgag	tagcccttcc	gtggtagcaa	gcataatcaa	ttcatcctgt	acacgcacca	780
accaggtagc	cctgtttctn	ctactncttc	gaagcaccct	ggcaaggtag	gag	833

(2) INFORMATION FOR SEQ ID NO:652

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2100 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2100

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:652

tgccaaagcn	gatttcccat	ggatttcgga	aacgatcgcg	ggattngacg	atttcgtgct	60
tggaaatagt	cggnggacag	gaggcaaacc	accggtaagt	caccggcttt	tcccactgat	120
ngaggaatct	tcacaaaaat	ctcgccactt	tgactgtgtc	gccatcgtct	ttcacaacgt	180
gggcacccat	cgggagctat	agttcttgag	catctctcca	ttctcgtcta	ttattcgagc	240
ataggagcca	tcgtcttata	cttggattcg	atgataatct	tttctttcag	accgtcgtct	300
cgtcgctttc	catcttgaaa	gttacattct	ccactacacc	ttcaaagaga	gtgttcctgc	360
tacttccgat	acgatgaccg	cattgaacgg	atccattcga	tgattttgtc	acctttcttg	420
actgcatacc	cttggcggaa	gacaattttg	caccgtaggg	gatattgtga	ttggccaaaa	480
tgataccggt	ttcggatcgg	caatacgcaa	ttcagtcata	cgactcacta	cgacctgatc	540
gattcgtctg	ttacatccac	agcacgtagt	tcctcgaatt	ccaagataca	tcataatttgg	600
agagcaagct	attctccgtt	gccacattgg	atgcgatcct	ccgacgtgga	atgttcggag	660
agtaagctgt	gtacccggct	ctccaaggac	tgagctgcaa	taacgcctac	gacctcacc	720
cgttgtagca	tgcgggtggt	gcaagatttc	taccatagca	cttggcacat	actcctttct	780
tggatcgag	gtgagaacag	aacggatttc	aacagcttcg	ataggtgaat	cttgataatc	840
tgtgctgcct	gctctctgat	ctcttctcca	gctctaacga	tttatccctt	gtagtaggat	900
ggataaatat	gtgaacagag	acgcgcccac	gatacgttcg	taaaaggaag	caacgacatc	960

ttcgttttgc	tttagctcgg	agtaagcagt	ccgcgtagcg	tgccacaatc	ttcctctgtg	1020
ataataaacac	gtgagaaacg	tccacaagac	gacgggtgag	ataaccagca	tctgccgttt	1080
caatgcggtg	tgcgcaagcc	ccttacgtgc	accatgagta	gaaataagta	ttcaagtacc	1140
gagagtcctt	ccttgaagtt	tgaaagaatg	gggtttcaat	aatctgacct	ccttcggctc	1200
cactcttttg	gggcttggcc	atcaaccacg	catacctgac	aactgacgaa	tctgttcctt	1260
ggaaccacgt	gctcgggaatc	catcatcatg	aagacagagt	tgaatccgtc	attgtctgaa	1320
ctggttgctt	gatcagaaca	tttgacaaac	ggccattgat	atgtgtccat	gttcgataat	1380
ctgattgtat	cgttcattaa	aggtgatgaa	tcccatactg	tgtcttgcat	aatctgctcg	1440
acggcagtg	aaccttcttg	gatcaattgg	ctttctcatc	aggaataagc	acatctgcc	1500
agttgaaaga	caagccacct	taaaagccat	gtagtaaccc	aaattcttga	tatcatccaa	1560
gaatttggtg	ttgtagctac	tccgcagatc	ttgattacgc	taccgataat	atctcgtgag	1620
cttttttccc	gagtacttca	ttgacatagc	ctaccttctt	cgggtactatt	cgtttaccat	1680
cagtcgccct	acggatgtct	ctaccatacg	acgaaaagtt	ctccgttctc	gtaatcctct	1740
acatagacct	taatcggcgc	atgatatcga	ctttaccctc	gttataggcc	tattgtcgct	1800
tcttcagggc	catgaaaatc	aggcgtgcc	cttttggtatt	gggacgtagc	ttggtaatat	1860
aaagagtccc	aataccatat	cctgtgaagg	aacggtaatc	ggtgctccat	tgcagggtta	1920
agaatgttat	tggaagccaa	cataagcaat	tgcgcctcaa	aatagcttcg	ttgctcagag	1980
gaagggtgtac	agccatttgg	tctccatcga	gtccgcatta	aatgcagtac	aactcaatgg	2040
atgcaactgt	attgctttcc	ttctatcagt	ttgggttgga	atgcttgaat	acctagtcgg	
2100						

(2) INFORMATION FOR SEQ ID NO:653

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 940 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...940

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:653

acagcagttt	atgatcagcc	ggaagctgca	tgcttcgccc	ttttctccgc	cctcttccgt	60
ctgttggtc	tcttcgccct	ccttttttgt	gccaatgctt	gatacctcat	gtcgattctc	120
cctggctcga	tatacccctt	cgttccaccc	catcggagta	ggggcacttg	tggcagtcta	180
tgccatgcgc	ctgtctccga	gttcaataga	gccatagaca	aatatctccg	tcgccgatga	240
gcctatacgt	cgattctctt	ctcgccttta	tgccctccgc	tcccaaaccg	atgcgtatat	300
catcacagag	ggaaaacgac	gcctgcgcgc	cctaaccgta	gagctcggct	catttgcgaa	360
gcacagcagc	gcaacgatga	gctaaaaaag	aactatgcgg	caaggaaacc	atcaatgtcg	420
tattccttgc	cgtgtacgat	tcatgtggaa	atacgatgcc	ctgtttgctg	ccatgctccg	480
gcatccgcgt	ttcggcctgt	actcatcggt	tgncctgcgg	gacaatctgc	cggccggcga	540
cggggcggaac	tcctgcaaaa	gacgcttgct	cactttcagg	ccaaaaggctc	gatccgcaac	600
cggcttgctg	ggacaatgga	gaggtgagag	acattcggct	gaatttgcac	cggattacat	660
tttctatacc	acaccttacg	acatccggtt	cctccgcccc	ttcgccagag	gacctttccc	720
gatatactca	cctgcacagc	ctctatggct	atccccctga	agaatatcct	gactggtagc	780
acctctgttt	cacaatcttc	tggggtagta	cttttggttt	cggagaaga	cctcgcattc	840
actcgcgact	cttctcgcgt	gaggggatgc	aacggagtgg	tcgcggagca	cctttgtcga	900
tgctttctcc	ttcgaataat	aggagtcgac	cgaaaaaaat			940

(2) INFORMATION FOR SEQ ID NO:654

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1920 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1920

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:654

taccgtcttt	tggaggaatt	gcctaccgat	ccttgggata	gcccgatggt	ggagtcatca	60
ccgaaagcga	aacactcttt	ctgctgaccg	ttttttcctt	tctgttgccct	tcgtatgtag	120
cccgaaaggg	cgaatgtatc	ggtgaaaagt	tctctcgggg	gattcctccg	ccggttggtc	180
gggggtggagc	caaactctgtt	gtgggtctgtc	ttgggtatagt	cttccgggtgg	tagcttgctg	240
gttggttga	agccctactt	ttgtaagaaa	ccaataaata	tatacacaat	gaagttgaag	300
tagccagcaa	cgctctgttg	caacacttgc	aattgattgc	ccggtcatag	cttcacgcag	360
tacacttcca	attttggagt	ctgtactttt	cggcttgagg	gagatcaatt	acgtcttacc	420
gctgccgata	tggccaatcg	gtgagtacgg	aacttaccgt	gaacaacgta	ggggggcgaaa	480
acgggttcttt	gccgttcccc	agaggatctt	acttgaacca	ctgaaagaat	tggccgatcg	540
ccgatctctt	ttgagataaa	tatggaaacc	aaagccgctg	aaatagcaac	agcaacgggc	600
attacagttt	tgtggtacag	gatgtttcga	cctatccgtg	gcagcttctt	tgtctcccga	660
agcaatcggt	tctatcggtc	cggcggagcc	ttgctcagtg	gcctttcggc	tacgtctctt	720
gctaccagtc	aggacaacgc	cggccgatca	tgacaggggt	ctatctggat	ttcttcgagg	780
acaacttggt	ttcgtaggct	cggatggaca	gatcttggtg	aagcaggagg	atgtaatgtg	840
cagagccgtc	ggcgtagtgc	cttctgcctg	cctaggaaaag	ccgtcttctg	ctgcgcaatg	900
ttctgccccg	actggaaggc	gatgtgacac	tacgtatgac	agcaactatc	tccatataga	960
acttggaat	tatacgtc	agcacgggtg	ctggaaggtc	gttatccgaa	ttataatagt	1020
gtaatacctc	cagcaatcct	ttctcggtga	aagtggatcg	tgctcaactc	ctatccgggc	1080
caagecgcta	tctatcttct	ccaatccggc	tacgagtatg	ctgcgcagga	gtttaccctt	1140
gcaggcatcc	gcttatcggc	taatgatata	gatttcctgt	ggctgctgaa	gaacatgtgc	1200
cggcagaatg	tccggccgac	atcaaatgcg	catcggattc	aagtcggatg	tctttcagac	1260
aattctgcaa	ggaagccatc	ggaagaagtg	ataatgactt	tggctgatca	gactcgtgcc	1320
ggttcatact	gccggcagag	aatgcaccgg	ggataagcct	gtgcaatttg	ctttgccgat	1380
gaagttgatc	ggcgaataaa	aacgaattcg	aatgaaattg	atctgaaaaa	cccgtgatc	1440
ttcttcgacc	tcgaaacgac	gggtgtggat	tgggtacggga	cagaatcgtc	gaaatctcca	1500
tactgaaagt	catgcccag	gaagcgaaga	gtgtaaaaa	aggcgtatca	atccccgaacg	1560
ccctattctc	ccgaatcgac	agccattcac	ggcattaggg	atgaggatgt	gaaggacgtc	1620
cgccattccg	ttcgggtggc	aaaagtcttg	cgcaatggat	agaagggtgtg	atttggcagg	1680
cttcaattcg	acgcgattcg	atgtgccgat	gctggggagg	agttcctccg	tgcccggagt	1740
tggacatcga	cctccgccac	agaagctcat	agacgttcag	acgatttttc	ataagatgga	1800
acctcgca	ttgaggcagc	tactcgtttc	tattgnaata	gaactttgga	aaatgcgcac	1860
tcgctgaagc	cgatacgccg	tgctacatac	gatgtgttca	aggcccaatt	gatcgttatg	

1920

(2) INFORMATION FOR SEQ ID NO:655

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 543 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...543

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:655

gacttttgtt	ggataatata	aaatgacata	cagaattatg	aaagctaaac	tttattatta	60
gcacttgctg	gtctcgcatg	cacattcagt	gcaacagcca	agaagctact	acacagaaca	120
aagcagggat	gcacaccgca	ttccaactga	taaggcctcc	gatcattggg	tcattgacat	180
tgcaggtgga	gcaggttggc	tctctcgga	tggaataatg	atgtagactt	tgtagatcgt	240
ctaagatcgt	tcctactttc	ggtatcggtg	aatggcatga	gccttatttc	ggtatcgtct	300
ccaattcaca	ggattcgaca	tctatggatt	cccgcaggag	agcaggagcg	taaccacaat	360
tactttggaa	acgccacct	tgacttcgat	ttgatctgac	gaactatttc	ggtgtatacc	420
gtcccaatcg	tgtcttccat	acatcccatg	ggcaggtata	ggatttggtt	ataaattcca	480
tagcgaanaa	ccaatggtga	aaaagtagga	agtaaagatg	atatgaccgg	aacagttaag	540
tcg						543

(2) INFORMATION FOR SEQ ID NO:656

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 887 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...887

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:656

ccctcattaa	aatncaggta	aacggtaact	gtctaatact	gagaaaatca	aatccaatag	60
cctttctctc	ttagcagana	agttcatcag	gtactttctt	gcagaaatac	agtttgcccg	120
actctccgaa	aagggaaagt	cgggcaattt	atgaaaggac	gaaaggtaat	agccctgtaa	180
aagcctttat	ccttcgcgtt	cagcatttgg	agtcgcttct	ccagatcagg	gaattggcct	240
tcgggaggag	cgacgtacag	atacgcacg	cttcgttgcg	cttgctgcct	gtcgttttag	300
cgtgatggca	cacataccgt	agcgcaaaa	cttctcgatc	aactgctgct	atccatcccc	360
ttataaccga	ctgtgaagta	gaatccgtca	gcagtggttc	aatttgccgt	ccttatcata	420

gacgatattg	aagccgttgt	caggaacatt	ttcttcatga	tccgagcctt	cgggccatat	480
tcgattacag	gtcgcggaag	ttatatcttc	catcattgca	ggctttgagc	atggcagcct	540
accccatgtg	gcagagttag	tggctcccga	agacagagca	tacagagcga	tgatgacaat	600
gcctcgccga	aacgcagacg	cccgaatgac	tcttccagtc	cggatactca	cgctcgtaga	660
gcttgcccgga	tatcatgagt	actccgtgcg	ctgaccggca	tagctgaatg	ccttgaggct	720
ggagagagcc	agtattaatt	gtccgtgtag	ttggctacgg	aagggttgata	gagcggtcga	780
cccgatggga	atagtcctta	cggaaatcca	tgccgaagta	tgccaagtct	tcttgacgat	840
aacatcatgt	ttggtcgcca	gtcaccgat	gatgcgcagt	tctcgtc		887

(2) INFORMATION FOR SEQ ID NO:657

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1689 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1689

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:657

aaccgtacca	cgacccgtga	tagagaacac	gtcttcaanc	ggcatcaaga	cggtttgctg	60
atatcgcgct	ctggcagggg	aaccagttg	tcaacagctc	cataagctcc	atcaccttgt	120
cttcccactg	aggctctcca	ttcaaaggcc	cagagcagaa	ccacggatga	taggggtatt	180
gtcaccatcg	aaatcgagaa	agaaaggagt	tcgcgcgatg	ccatttcaac	aagctcgagc	240
atctctcatc	gtctaccatg	tcacatttgt	tcatgaaaac	aaccagacga	ggaagtttac	300
ctgacgagcc	aaaaggatgt	gctcgcgagt	ctgaggcata	gggcgtctgt	agctgctaca	360
acgattatag	caccgtccat	ctgagcagca	ccgtaacat	gttcttcaca	tagtcggcgt	420
gacccggaca	gtctacgtga	ggtagtgacg	attagctggt	nggtattcaa	cgtgtgaagt	480
attaatcgtg	taccacgttc	cttttcttcg	ggagcgttat	caattgaatc	aaatgaacga	540
gttctgaaaag	acccctcttt	gccaacacag	ttgtgattgc	agctcgtcag	gtagtcttac	600
cgtgggccac	gtgtccgac	gtaccaacgt	taacgtgggt	ttcgatctgt	taaaatgctc	660
ttttgccata	accttaagtt	ctttgtttat	ttaagttggt	tgtttgtgct	tatacaaaac	720
gctaaccaca	atcaggccga	tgccgggact	tgaaccgagg	acctcttcct	taccaaggaa	780
gtgcctaccg	ctgagctaca	ttggcaatcc	gatattccct	cgttttgctc	gaggggtggg	840
cagtgatgga	ttcgaaccac	cgaaggcgta	agccagctga	gtacagtcag	ccccatttgg	900
ccactctggt	aactgcccc	cgcgtccgg	tcctgactta	ttaccgctaa	aatcacagcc	960
ttagcctcat	gcggattaag	ggaggcgaat	cggctgcaaa	tttagtgaca	ttttctaatt	1020
cgccaaacat	cgacgaatct	ttttggctct	tgctctatct	tctctgttct	ttcctttttc	1080
gatctgtctt	ttcagtgcat	cgactgtcag	atcaatagct	tcctcaaggt	gtctgctatc	1140
ttttccgcga	acaagtcgtc	gccggggata	tagagctgat	agatgcttct	ttgttttgta	1200
cggctctcagg	cttgacgagc	ttgagacgac	ttcggctccc	gttattccat	cggacaagcg	1260
attcagcttg	gatatttctt	ctgtacaaaa	tctttcagtt	ggtcggtagc	atcgaaatgc	1320
agacttggat	tcttacatct	gtcatggctg	tttctttttt	tgcccttgga	tggcggtata	1380
catctgtcta	agttgttcga	acgaaatatg	cgtgtattgc	acgtcgtaga	aaggctgtcg	1440
tgccctaata	gttctttgac	cgatatcaga	ctgtccgtg	gttgagcatt	tcggtggcga	1500
agctgtgtct	cagaacatgg	gactcctctt	ggtcagggtg	ggtagctttg	ccaatgccgt	1560
acgaactact	tgtagaccac	ttcacctgtc	agtggctctg	catccaaaga	aacgaaaaaa	1620
aatcagattt	ccctactttt	tcttcacgaa	tattccgata	gttggtcatca	tatcttgacg	1680
acgtttttcc						1689

(2) INFORMATION FOR SEQ ID NO:658

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 633 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...633

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:658

gctcgtgcct	cttcgagcgc	gatccgcatg	tagcggatgt	catccgtgga	aaggtagggg	60
ctgtcatcgc	atttcctcct	ctcgaaaaag	caanggaggt	cgctttctaa	ccggtgtatc	120
acttccttca	tcagcgtttc	tcggatcaac	gggagcgggt	ctctactttg	aagcggctgc	180
aataggcttc	gacggcttgt	gctccgcttc	gttcagtcgg	atctgaatgg	ctttctttcg	240
gagcacgtgg	ctcgcgggag	tacattgtgc	cgatttttcc	tgctcatatt	cagtatgcaa	300
atatagtccc	tttattctgt	tgtcggcccg	tctgcatcca	ccatccacgg	aaagtaagac	360
ggtgatgtgg	cgaaactccg	aaacgacgaa	tacggatttg	tgtgcagggt	acggataacc	420
tttgttgcgc	tcccatccgt	aatcgggaag	tccttattca	gacggagcat	cgagtcgtcc	480
cgatagggtt	ggccaaaatg	gaagctgctg	cgatggagcg	atagcgggca	tcgcctcccc	540
gatacagtgg	tgagggattt	gttcgaaagg	atcgaaccga	ttgccgtcga	tcagcaatct	600
ttcggggcga	aaaggcaact	gctctatggc	gcg			633

(2) INFORMATION FOR SEQ ID NO:659

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4354 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...4354

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:659

cgagcagaaa	ggtaaggtaa	tagactgtgt	aaagacgggc	tatagctca	cgacaaagtg	60
------------	------------	------------	------------	-----------	------------	----

atacgtcacg	ctcatgggggt	ggtggggagaa	tgaatcccgt	caacgaatcg	gagcagaacg	120
aacaaggata	agacatggca	gaaaaaaaga	ctattacgaa	gtcctcgggtg	tatcgaagaa	180
tgccaccgac	gatgaatgaa	aaaagcatat	cgcaagaagg	ctatccaata	ccatcctgat	240
aagaacccgg	tgacaaggag	gccgaagagc	acttcaaaga	ggtagctgaa	gcctcgcacgt	300
attgagcgat	ccgcagaagc	gcagtcaata	tgaccagttc	ggcatgccgg	attgggcgga	360
gctgccgggtg	gaggtttcag	cggaggcgggt	attccatgga	ggatattttc	agtcgcttcg	420
gtgatctatt	cggtgggttc	gcggttcggc	ggattctccg	atatggccgg	tggcagtcgc	480
agacgtgttc	cagagggtct	gacctgcgag	tacgagtga	gctttctttg	gccgatatag	540
taaagggtgtg	gagaagaaag	tgaaggtaaa	aaagcaggta	gtgtgcagaa	atgtcgtggc	600
gatggcacgg	aagaagccaa	tggcaagact	acctgccgac	ctgccatgga	accggcgtgg	660
ttacacgtgt	gagcaacact	ttccttgggc	catgcagacc	cagagcactt	gtcccacttg	720
ccacggagag	ggtgaatcat	cacgaagcca	tgctccaagt	gtaagggcga	aggtgtggag	780
atcgcaaga	ggtgatctca	ttccacatcc	ctgccgggtg	agccgaagga	atgaaatgtc	840
cgtgaacggc	aagggaatg	ccgcgccccg	aggaggcgtg	aaggcgactt	gatagtcgtg	900
atgcccagg	aaccggatcc	gaatctgata	ccaatggcaa	cgatctgata	tacaatctgc	960
ttatatccgt	tcggttggct	taaaaggagg	tagtgtggaa	gtgccgacga	tagacggacg	1020
agccaagatc	gcatcgaggc	ggggacacaa	cccggcaaga	tgctgcgttt	gcgcaatagg	1080
ggttgcccag	cgtaaaccggc	tatggcatgg	gagaccaact	ggtgaattca	atgtctatat	1140
ccccgaatcg	atcgatgcca	aagatgagca	ggctatgcag	cgatggaaaa	ctcggacagc	1200
ttcaaaccta	ccgatgctgc	tcgtaggata	tagacaagaa	atacagagag	atgctggatt	1260
gaaagacaat	gccatgtatg	gtacttgacc	tgagaaaagc	tgccgggtatc	cggtatgcag	1320
tttacaacag	aagtcttttt	gagcgatgaa	caacgaattt	ttgcagacag	aaaggatatt	1380
gtccgtatgc	tgcgtagagt	atacgacccc	gaaataccgg	taatgtgtac	gatctgggggt	1440
tgatatacaa	tgtggacgta	ggagccgacg	gttcgttacc	gtcaccatga	cactgacggc	1500
accgaattgt	cctgcagcaa	cttcatcata	gaggatgttc	gcatgaagggt	ggaaagcgtg	1560
aaaggcgtaa	gggggtaaaag	atagacctga	ccttcgaacc	cgaatggaat	aaggacagat	1620
gagcgaagaa	gccatgctgg	agcttggatt	cctctaaaaa	cctcgggtccg	aatcgaattt	1680
ccccatgcgt	tcgaagatct	actttaccag	cgatgccatc	tcggttcgcg	ccatcatgcc	1740
gatactatga	cagtggagag	gcgttggccg	cttggttgga	gcgtattcgc	catgaggcca	1800
aggccatcta	cttatgggcg	acatgttcga	ctattggttc	gagtatcgggt	atgtggtgcc	1860
tctggcttca	cgcggttccct	cgggaaagta	gccgaattga	gcgatgaggg	gtggagattc	1920
atttcttttg	cggcaatcac	gacgtatggc	tgacagatta	ttgaccaagg	agctgggtgc	1980
tcatgtccat	atgcatggca	ttacgggtggg	ttgtccggca	agctcttccg	cttggcacat	2040
ggagatgagg	agtatcggct	gtgaagcggt	cgtacgactg	catgtaccgc	ctcttccgca	2100
atccggttga	cgctctcttt	atgcagccgt	gcatcctcgc	tggacagtcg	gtttggctat	2160
ggcatttcac	tgaaaagcag	acgcagcggg	gagaagcgaa	agacatcggc	aatatcccc	2220
acgcctacag	caacgactac	ttcgatatag	aaaagaatgg	ctgattcgtc	ttgccaaaga	2280
gcatagtgcc	cgacatcccc	aagggatttc	tatatatttcg	gccatcgaca	tctgctggtc	2340
gatatggcat	tggcgatgag	aagcgtgtcc	tgatccttgg	cgattggatt	cgttacaact	2400
ctatgccgtt	tgggatggca	cgacgcttgt	gctcgaatcc	atggaggaca	ggaataagcc	2460
ttcggtagca	agatcgggac	agaccgcttg	ataaaatata	cttcacgccc	gttcagggtta	2520
taaacgaaaa	tagctctatg	ggaaagatac	aatcacggta	ggcgatatta	ctcgcttcga	2580
aggagatgcc	attgtcatgc	ggcgaatcat	acccttttgg	gtggaggggg	agtggacgga	2640
gccattaccg	agcagccggc	cccgaactgc	ttggaggagt	gtcgcactct	caacgttgcc	2700
ctacgggaga	aagcaaaaata	acgggaggat	acaatctgcc	ggcgaatacg	ttattcatac	2760
cgtaggccct	gtgtggcatg	gagggcaaca	tgggagccgg	agctattggc	ttcctgctac	2820
cgtacatcgc	tgtccatagc	ttggacaagg	gactgaaatc	cattgccttc	cctgcatcag	2880
taccggcggt	tcggttatcc	taaagatcag	gccgcccgcg	ttgctttggc	cactatcggg	2940
agattattgc	agatcgcccc	attgacgtca	ctatcgtgtg	cttctcggag	cggataagga	3000
gttttatatc	acacaggact	gacgcgtaac	tccttggctt	ctcgcaagat	ctctatcgaa	3060
aagccttgca	gtatactccg	ccttctttct	cttctctatt	cagttcgtc	tcaccccccc	3120
aagggttccc	ttccaaaccc	cttagggatc	ccccctgaga	cccctaaggg	gtcctacccg	3180
agactcttag	gggtcccata	ggagactcct	cgggggtctc	aacagggact	cctagggatc	3240
gtccccatac	ttcttgatgt	cttcggagaa	ggttttccaa	agaacttttc	ccctctctct	3300
ctctgcacgc	ttgccctgaa	tctgtgctgt	cacgtcacgt	ttttttttac	atttgtgcct	3360
aataagctaa	ctctcgaggc	tatgggaaaa	ttgttacagg	ataaattggc	tcagtatacc	3420
gagccgcaaa	ggcacaagcc	gcaggtattt	acccttattt	cagaaaaatc	gaaagtgata	3480
ggataccgag	gtcgttatcg	atggtcggaa	agtcctcatg	ttcgggtcaa	tgcatacttg	3540
ggactgacga	accacccgaa	agtcaaggag	gcagctacga	agcgacaaag	aagtacggta	3600
cgggctgtgc	cggctcccg	ttcctcacgg	cacactcgat	attcacctcg	aactggaaaa	3660
acggctggcc	gagttgtcgg	caaggaagat	gccatcagct	tctctaccgg	cttccaagtg	3720
aatcgggcgt	tgtctcctgc	atcaccggcc	gcgaggatta	tdtcatctgg	gacagttgga	3780

tcatgcttcg	atcatcgagg	gtattcgcct	ttcattcagc	acaagttaaa	gtacaagcat	3840
aatgatatgg	gttctctgga	gaagcggctc	cgcagtgcga	cccggagaag	atcaaactga	3900
ttgtggtcga	tggtgtcttc	gtatggaggg	tgatgtctgc	aatctgccc	aaatcgttcg	3960
cctcgccaac	gatacaacgc	caatgtgatg	gtggacgaag	ctcacggtat	cggcgtgagg	4020
gcgaccacgg	acgcggcgctc	tgcaatcact	tcggctctgac	cgacgaatgg	acttgatcat	4080
gggtactttc	agcaaattctt	tcgcttcgct	cggaggttta	ttgcaggaga	caagagcggt	4140
atcaactacc	tgcgccacca	cgcccatcct	atattttcag	tgccagctgt	acgccggcct	4200
ctacggcagc	ggcacagctg	ctctggacat	tatgttttagc	gaaccggagc	gtttagccc	4260
atttgggagc	tgacgcacta	ctcattgaac	gcattccgca	gtcttggatt	cgaataggtc	4320
atacatcgac	acctattatc	ccgcttttta	tccg			4354

(2) INFORMATION FOR SEQ ID NO:660

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1396 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1396

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:660

caccctgtat	cggtccacg	acaaaagcag	ctacatggtc	tttgtgttct	ccaatgcctt	60
ctccaaagct	tctatattat	tataaggat	attgacgagc	ccggcgata	agggccataa	120
tcggatatagc	tgctgggatc	ggaactctgg	aaacgatact	gatgggtgcg	ccatgggaagt	180
tgccgtcgca	tacgatatga	cagccttctc	ttcgggtatt	cctttcacac	gataacccca	240
acgacagaga	gtttcaaagc	tgtctccaca	gcctccgcac	ccgaattcat	cggcacatct	300
tatcgtagcc	gaaataatgg	tgcataaact	cttcgtattc	accaaacaat	cgttgtagaa	360
agcccgtgaa	gtcagacaga	ttttttccgc	ctctccttca	gtgctgctat	gatttttcgga	420
tggcaatgcc	cctgattgac	gcactataag	cagaaaggaa	gtcgaaataa	cgcttcccat	480
ccacatccca	acataagctc	cctgaccacg	agagagtacc	acctcgagcg	gatgatagt	540
tgagcaccgt	agcgatgctc	aagatcaaca	taatactttg	ctttttctac	aaaaccataa	600
ttgattcggg	agtagaatta	ggacgggtata	tcaggcaatc	aaaccaacat	gccctacacc	660
ttggatattha	agccaatatc	ggcgacccaa	atatagaaaa	caaatctttt	gaagttgtca	720
ttatgtcaat	attttaagac	tatgcaaaca	aatcacacc	atactgcaa	gcaggcagga	780
caaatgccct	accaaacaca	ctttcgacat	aagataggaa	aggaaccgga	cataaatgag	840
caggatgcct	tctcttatca	tgtctttctt	gataccggaa	tgacactcca	tttgaaaata	900
atcgactctc	ttcctcgcg	acaatttttc	tatttttgc	tccgcaacag	gaggctttgc	960
ctatatcccg	aaggatcggc	gcatttcgag	aaccgcccc	tacccttttc	gtcatcatta	1020
aaaaaacgat	atacccaaat	ggctacaacg	gcagactttc	gcaacggcat	gtgtctcgaa	1080
ttgagggaca	gtactacttc	atcgtcgaat	tccttcacgt	caagcccgc	aaggcccggc	1140
tttcgtccgc	accaaactca	agaacgtgac	tacaggcgta	tcctcgataa	gacctggaac	1200
agcggcgctn	aggctgaaga	ggtcaaatag	aacgacgcc	ctatcagtac	ctctatcagg	1260
acgagatggg	atacacttca	tgacccccga	aacgttcgag	cagatcacca	taccgggtgc	1320
aagatcgacg	gcgtccagtt	cctcaaagac	ggcgatatgg	tagaagtc	ggacatgcca	1380
ccagcgaaac	ggtact					1396

(2) INFORMATION FOR SEQ ID NO:661

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 495 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...495
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:661

tcctgctccc	cggcaccaag	tgcatggctc	tgcggaattg	agaggtagcg	cctttgccga	60
tattcttttt	tgatcttatt	ctacctgaga	ttcgatgtcc	ggcgggaagta	tttttcgaaa	120
aataagatct	gataatctat	ggcattagcc	aataagctct	gttggtgccct	cccggggcgga	180
tggtaaaaatc	atgatcattt	gctttgccag	aagtgaggca	tgcagctctt	tgttgacatc	240
cagaagaaat	cctccactcc	gcaatctatt	aggatagcaa	gtgcgggnccc	tctcagctgt	300
cgaggttgtt	gatcacagt	tactcgtccc	catagcttcg	gatctcggcc	aaagagccaa	360
gcccgtctgc	ttatctccca	gttgttcgga	aaggacgaat	atccgcacaa	ccgctcattg	420
cttccccacag	gcttccgaac	gcgtcctgat	gccgaaaggc	aatccataag	gcgcctgtcc	480
cacccatgct	gagtc					495

(2) INFORMATION FOR SEQ ID NO:662

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 777 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...777
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:662

gcagaacncc	gatgacatct	atatgagcct	tatgcgcnag	tnggggctga	tgatcagggtg	60
tggcagnccg	gagccatcct	gctgccgggt	cggtccgtgg	cgtaatggnc	gacgagcgta	120
cctacgaata	caccgtggca	ctgcgtgcgt	gacttctatg	gatgccatga	gtgccgattg	180
ggtgcatttg	ccgtatat	tctggccaag	gtgtcgaacg	aaataatcaa	taaagtgcgt	240
ggcgtaaccg	cgtagtctac	gacatctcct	ccaaaccccc	cagcacaatc	gaatggaata	300
acaatgtcag	cccatacagg	aatctgtaca	gcgaccaccg	atctattcac	tattataaaa	360

aactgctttc	atgtccacgt	accaaccgga	agtactcgta	aggtaactac	acatcgccctc	420
atcgagatga	agagccgtgg	gagaaaatct	ccatgctcac	agcttatgac	tactcaatgg	480
ctaagctggg	gatgaggccg	gtatggatgt	cattcttgta	ggtgattcgg	cttcgaacgt	540
atggccggca	atgtcaccac	cctgccccatc	actctcgatc	agatgatcac	cacggcaagt	600
ctgtgggtcaa	ggccgtcaag	cgtgctcttg	tggtcgtgat	cttcctttcg	gacccctatca	660
gggcaactcc	aaagaagcct	tgtgctggcc	atccgtgtga	tgaaggagac	acatgccgac	720
tgtatcaaac	tcgaagagga	gaagangtgc	gcgagtccat	tgtgcgaatc	ctctcgg	777

(2) INFORMATION FOR SEQ ID NO:663

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1519 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1519

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:663

attcgaacaa	ctcttcctgc	ctgataaggt	acaggatcga	gcaatcggcg	atacatccgg	60
caatagacag	gggattgtac	atgatcccaa	aaggattgtc	tctgtgcgaa	aatccggctt	120
gacggcatat	aggaaccaac	ttccaaatga	aacaggaacc	aacgaaaaag	agcttattgg	180
cataagagat	caacctttctc	ttattaccgg	atttctcaacg	ggggtagtta	gctgtatcat	240
cgtccacaa	cttgtttctg	cacaaaagaa	caaaaaagag	agcaattaaa	accgattggg	300
cataggttcc	atttttccga	tgagcgatgt	ggggcaaaat	gcacatacgg	ccatttcata	360
tcggactggg	ttatgcgcca	aaattctcgc	gtactttcta	cagaaaacac	atttagtact	420
agtagttttt	tctcgatcta	ccaaggattt	gtcagatctc	tccaatgggt	ttttaagtat	480
aaaatcggaa	ggtttatagt	atcaagtccg	tcggcccgat	atttacagg	cggaggactc	540
acggagcctc	tattcggtat	ttcgaacgag	gagtaccaca	ttctctactg	gtgggtgtgg	600
ggaaacatat	ccaccggacg	ggattttacg	gctcggttct	gccatctgcc	atcagcagag	660
ccaaatcgcg	ggcttgtgtg	gcaggatgca	gctgacatag	actatcctcc	tgggtgcagc	720
aaagaggatg	gcatcatcac	actctcgtgc	atgccggctc	gaggcggatc	cgtaatgacg	780
acgtcggacg	tccatgctgt	tcgatgaagt	cgttggtcag	gatgtctttc	atactcctgc	840
atagaagagg	gtattctcta	ttccattcag	taggctgttc	gtcgggcata	ctcaatggct	900
tcgggtacgt	attcgatacc	gattacccga	tggcttgtcc	ggctacgaag	ttggcaatcg	960
tccccgtgcc	ggtatagagg	cgtaaaccag	ttcgtccctc	gtgagaccgg	caaattcgcg	1020
cgctatccgt	aaagttagga	ggcctgccgg	ctattggctc	ggtagaaaga	cttaagcccc	1080
atcttgaact	tcagtccttc	catctcctcc	tcaatgtatt	ccctgcctgg	tacaggagca	1140
cttctgatgc	gcctatcgtg	tcgttgcaat	tggatgatgc	acgtagagga	gcgaggtgat	1200
ctgagggaaa	cgttccgcca	cggcccaagc	agagcttctc	gagcagcaac	atcgtcgcga	1260
aagaagacca	cgacaccatc	agttctcctg	tggatgtagt	ccggatcatc	agcgttcgca	1320
tcagccttcc	tgatttctca	ggtcgaagaa	aggataacgc	tccggatcct	gctgcaatat	1380
tcgcggatga	aganacgtat	ttcgnccgat	accttagccc	caagtggcat	tcgcgaatgt	1440
ccaatacctt	gtcgaacatg	ccgggggat	gaatccaagt	ccgtatcgca	cctcgggaga	1500
gaagtcgcca	tcgacttcc					1519

(2) INFORMATION FOR SEQ ID NO:664

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 562 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...562

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:664

tacggatcat	gtttccacca	ctgttcatta	tcacctaata	gtcgatagtc	atacccaatt	60
gctcagaagt	ataatttgc	ccctgctgaa	tccttttttc	acggttacat	agattgttcc	120
ctttgaatca	atccccatat	tgggaatata	tacttgacgt	taggctcatt	actgataaaa	180
ggaggagcta	tttcttccaa	aagctctgtg	cgtttcgcc	caatacacct	gacatcatta	240
aagccggcac	agaataattt	gttgaactgt	tgttttcatt	tccttttcga	ttatagttat	300
tnatcatttt	atttcattctg	catctttcga	ctacctactt	cctgccattt	acaatcagag	360
aatatacaga	gcaaatccct	gaaacacatc	acatatgaca	tatgccgaaa	gataaataat	420
tatatcaaaa	acgacaaaat	ccaaaagaaa	attctctgtt	accgctcaaa	atcggttttc	480
ggttttcaaa	catgcctgca	taaaatagca	acacctctca	gatngaggaa	aataaaatcg	540
nccttgcgga	caacagatcg	cc				562

(2) INFORMATION FOR SEQ ID NO:665

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 751 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...751

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:665

ggccaacatg	ggatcggata	tgatgaggac	tttgtctgtg	atgtccggca	tgctatgtat	60
tcgatgtgga	tgtcgaaatt	caggcgggtcc	ttatacttct	gtaggcggat	acaaaggcat	120
tttcacaata	gtcgaaatag	ttgaggagcc	atgatggaaa	ggcagtcctg	ctcgaaggat	180
cgtagcgagc	actacttgtc	ttgggggtacg	gagcactcgg	cctcacccaa	gggcgtagtg	240
acggtcgcac	ctggtgggtc	atcttcttgc	tgatctcata	ggccattact	tctccacacg	300
ttctatatta	cgacgaaagc	gcagtcgata	gttctgaata	gtgcacgcg	catctccatg	360

acgaatctat	tgagaagaga	atgctcggca	ccaagtgtat	tacttccata	attattgttg	420
tgaggtaggt	tatgcaaatac	tcgaacgaga	tgttctaaat	accgattcgc	gcaaaaaatac	480
aatatctttg	tgcataaggc	gttgatctta	cacaccaaata	aaagaattga	agattattcc	540
tcagatgcaa	ttcttatata	attcacgttt	ttcgttgaga	gtcgtctctt	ttgcctgatt	600
tgtgcctggg	ccggacgtac	gctgtcggcg	caaacggaaa	agtacaaaat	cgcccctacg	660
ccgactacaa	acgctatcat	cttggatcca	tgtagggatg	catgcccagg	atttggttat	720
ctccaacaac	gggttgtagc	cgaaggaggt	a			751

(2) INFORMATION FOR SEQ ID NO:666

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1387 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1387

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:666

tcacacgtgc	accactcttt	ggcaatatct	atgctgcggg	ggctatcatc	ccaatgacaa	60
agccaatatg	gaaaagggtg	ttacaggaga	ggtcggcttg	gattcacgaa	tcacaaaaac	120
ttcagattca	atatcaacgg	atactatcga	agtggatgga	tcgcgtgacc	tcgaagagaa	180
tcggaaacga	gtatgttatc	tcaatggcgt	tgatgctgtt	cactgtgggg	tagaggctga	240
ggtcactatc	gtcctattcg	tcagatcgac	cttcgcggta	tgttctctct	cgg tactgga	300
cttggcaaaa	caatgtaagt	tacacttctt	acgacgaagc	cggaaatgaga	cagggcagga	360
tataacctat	atcaagggtc	ttcacgtcgg	agtgcagcac	agatgacggc	tgctgtatcg	420
gcagacatag	agctgttcaa	ggtttccatg	tcataggtaa	gtacaacttc	cttggcaaga	480
actatgcagg	ttcaaccccg	caacgcgtaa	tgcacagcag	tacgaagcgg	atggcaaaga	540
atcgtggaat	catggaagtt	gcccgatgta	ggctctgttcg	atctgtctca	tcctacaatt	600
tcaagcttgg	ttcactcagc	accacattct	atttcaaatg	gacaacgtag	ccgacaagcg	660
atatgtgagc	gatgccgacg	acaatacatc	ggtaagaaac	acgatgaggc	ttcggctctc	720
gtatggtacg	gtttcgccgc	acttggctta	ccggtattcg	tgtaaaacttc	tgatctttaca	780
ctgacctact	acataagacg	gacgaagagg	gtgtgtcaaa	atgaaaattt	tggtcacccct	840
ctatatTTTTG	agattctcct	gaaagccgga	tttaattata	aaaggctgtg	ttgaaattat	900
ttttcgattt	cctctcactt	tttgtcgaag	cgtttggaat	ttgtcgaggc	ctctgcatgg	960
gggttggtcgc	atttgattttg	cggttcggga	gattctttct	cataggcatc	gaaatagcag	1020
gggtgtagaat	cggctttttgt	tcctatTTTTT	gtgactatgt	tgtgtgtgcc	gtaaaaactg	1080
aaaaagcgag	tacggttttac	ttactaaata	agattaagat	gccttgagaa	ggatcggatc	1140
agacgaccaa	atgagaaatg	aataacagat	acaataaaaa	taagaagaat	aagaaaatga	1200
atagaatttg	cgaattattg	ggtatgaaca	ttcgatcata	tcgggaggca	tggtgtggtg	1260
cagcgggttg	aaacggcttc	tgctgtgagc	aactgcggtg	gtttgggact	tattggtgcc	1320
ggaccattgca	tccggacaat	tctggagcat	cacatccgtt	cgtgtaaagc	tgtacagaca	1380
agcctttt						1387

(2) INFORMATION FOR SEQ ID NO:667

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 434 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...434

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:667

gccaacctat	caaggaaagc	aacatccaac	atatactctg	ccgcgagcct	aggcgcgagg	60
ccttatccgg	agtgatagca	gcaagcaact	cttcgaaggt	gcacgtagaa	aaatggcatc	120
attcgatgga	tactcctcca	taatatggga	gtgagtatat	gttgtttgac	acctatttct	180
tcgagcagat	caattaagag	agagtctctt	cgatagattt	tgaaccgtca	tccactgcag	240
gcaacgatga	caatgtatat	ctatcaggtc	agtcaaccat	ccttgttcaa	agggttgact	300
tgcttcgntt	ttcgcttaaa	aatagaaaac	atcctattcc	tttgctcttc	ttcatggggc	360
caatcttgaa	tttcttcgtc	ttcttggcag	aagacgacgg	agttttcttg	ccttgtttgc	420
catactcctt	gggtg					434

(2) INFORMATION FOR SEQ ID NO:668

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 6954 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...6954

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:668

aaaagggcta	ctacgcgcag	catcatcggg	tgttcgatga	tttccttggt	aagttgtcca	60
ctgtcgggat	cgtaatcttg	agcatcacag	gctcgggtct	ttgtccaact	gtgccagcag	120
ttctcgttg	aggatctctt	ctgccttgcc	ttttcggggc	agtggatgtc	tacctccggt	180
tcgaggatag	gtactagcca	tgagaaagaa	tctcttttcc	ccattggaat	tgctgctcta	240
cgatgcgcga	ataccctgct	cgttggcctg	cttgatcaca	ctacgcatct	tggtccgaaa	300
acgtgggtatc	cgacagcttc	ttcacagagc	ttgccgagtt	cggaaacggc	ttcatcagct	360
gtacgccgtt	ggcttcgtcc	tgaagccctt	tgccactttc	aggaaggggga	cgatgtgtct	420
tttctcccaa	aggaagtctg	cgtaggcatt	ccttcgatct	tgccgcgcat	ggtacgttcg	480
aagagaatca	accgatgatc	ttgcccgtag	cgaaagccgg	agaagtaatc	atccgagtag	540
catttgggtga	atgagatcga	acatctcctc	ttcggactga	tatgcatcgg	ttggataccg	600

tatgccttca	gagcttttagg	ggtcgagcca	ccactctatc	caatgctcct	acaaagccgg	660
gagcctgacg	catctgctgc	aattgtcttt	gttcattgct	tgtctatttt	aataagatta	720
gcgaaatagc	ttgtgttttt	cttggttttc	tcaaaggtag	agattatttg	tgagagggga	780
cggtcgcaca	tgaataattg	attcggagga	agggatcttg	agggctaaag	gtcagggaaa	840
atcagccctc	tcgaatatct	actcatgatt	gctgcttcgg	agggctctct	agcaaggata	900
aatgcttgaa	aggctnatac	tgacaaatgc	gtgatctcac	tgattaagaa	cgcgcattga	960
aggatcggat	acacgatatc	cgtacccgat	cagtttgctg	gccaaaattt	ttgcgcttgt	1020
ggtcgctgaa	acatggcgcg	aaaacttttt	gcttttgcg	tggaagtga	aaaattccgc	1080
gccacaacga	aaaaattccg	gcgcaacttt	tgggaaaaac	acagacccaa	ttttagcggt	1140
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gaattggcac	cgttttttct	ggtttcttcg	cgagcaatct	gcacggcctc	cagtaggaga	1920
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cccttcgaaa	cgtatgccga	caggtcgcca	acacctgtgg	ttaccagtcg	aggccccag	3900
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gaccgttcgg	gtagcgaacg	atcacatcgg	gacgcattcc	tctgccgtct	catcgtggag	5160
gagggtacgc	ccttcattcat	tggtcagggt	ctctggatga	agaactcttc	tccttcgggtc	5220
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ctgtctcagt	gttgtgcctg	cgatggaaga	gcctacgacg	agtccggcaa	ctattgcgac	5760
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ctattgatgg	aagatgtatc	tgctctgtgt	cggatggcag	gttcggggag	agggaggttc	6120
cgtgcagctg	taaaaccgat	agatgagatt	gtcgcacggc	attttccggg	agattcattg	6180
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cgatatcgga	cctaccatgc	ggcaaggacc	gcaccatgta	gcccagaaat	ccataccatc	6720
ggcttgccct	cagctaccaa	gccgtcaaaa	tgttgcattc	gtatttgcag	tgccataaatt	6780
ttgttcgttt	tagtttgggt	ttattcttgt	tataatgatt	ggtctattca	agtgcaaaag	6840
taatctcata	agtcttcaat	tattcaccag	ttcgggggac	actttgatca	gcgatttctg	6900
ctgtgccagt	cgacatcgaa	agtctccgta	tggtcataca	ctttgataaa	taac	6954

(2) INFORMATION FOR SEQ ID NO:669

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1316 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1316

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:669

agccctccca	tgttttcttg	ggtgatatga	ccttgaagag	tgtatgcttc	caaagaggga	60
acctgcaata	aaagctcctg	tatcattcag	ccatatacaca	caaaaacgaa	gaggaagtag	120
tgaggcgtga	agtctgccac	ttctcctctg	ccaactccct	gccgatactt	tcgggcacga	180
gcagaagact	acccaacca	gcgttgccgc	tatatacaga	tgcccatga	aagtgcggct	240
attgtcgatc	cggccttatg	gcgatccgaa	tatagactgc	gcaccatagt	gtaggacat	300
agaagatata	cgggataaat	atcgtgacat	ccattcggtc	actccgtata	ggaagatggc	360
cgcaaagagg	aaggcaccga	aaagtccgct	cagaatgcc	gaaggggacg	tgtgcgattc	420
agattgacca	gcgaggcgaa	tcccgcagtc	ccaacacgat	gaaaacggca	aaaaccgcta	480
agaacaaagc	ggttccctta	gtacgacggg	aaggatgac	agggccatat	agaccagaca	540
ctgaggctgc	gaatcaaaac	tgctttcata	acgtaagctc	gatagtcttt	tatatattat	600
tcgggatgtt	cttccgtctt	ctcttctccc	tcaacggaat	gggtgcttcg	gcatccgctg	660
ttgtctcttc	tgtggcggta	gccggtcatt	cagcccaagc	aattcttctg	tacgcgaagc	720
ccaggggctg	ttgccaatat	acgtctctacg	tcatacagcca	gaatcacttc	gcgcttgagc	780
aacaatctgc	cagttcgtgg	tgcccggctt	catgctcgcg	cagaatgctt	ttgcgcgctc	840
gtattgttcg	gatattattc	tgtttacttc	ggcatcgata	actcggcggt	agtatcactg	900
tacggctttg	tcagattcca	gccgtcggtt	tcatttcgta	gtagttgatg	ttgggcagct	960
tgctcgctcat	gccataatag	taaccatggc	gtaagccaac	ttcgtaacgc	gctccaagtc	1020
attggctgcc	cggtcgatac	acgtccgagg	aagagatctt	cggcggcacg	tccacccaaa	1080
gggcgcaaaag	ctgacctcgc	agagcctccg	ttgtcgtgat	ctgacgcctt	ccggcagata	1140
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tagcgtagca	tccaactgat	agtaggtgtc	cggcttcgtg	gatggcgatg	ctgcgacgct	1260
cctcctctgt	ggtgttttgt	tctttttctc	caatccgctt	acgatccgat	ccacgg	1316

(2) INFORMATION FOR SEQ ID NO:670

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 466 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...466

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:670

ccgaggatgt	acccaatgca	gcatttcgca	tccgagggga	gaaaacgtgg	gcgtacagtt	60
ccatcccagag	atctaccact	cggagaagag	taccaaacgc	ttggcaactt	cctcgatata	120
tgccggtatga	agcgtgattg	gactccgctt	ctttcatcga	agcgactgtg	caggaaacttc	180
gcgaacgctt	aggtgagaca	aggtgatcct	ggcactctcc	ggagggtgtg	acagttcgggt	240
ggtgggggtgc	ttctgaacaa	agctatcggc	ggcaacctga	cttgatatatt	cgatcatcacg	300
gcttgctgcg	taagggcgaa	ttcgagcgcg	tacttcagga	ctagagcact	tgggtctcaa	360
tgtaatcggg	gtgaatgcat	aagaaaaatt	ctcgcagccc	ttagcggcgt	taccgatccc	420
gagcaaaacg	gaagattatc	gtcgcggctt	catcgaagtg	tctcgac		466

(2) INFORMATION FOR SEQ ID NO:671

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 558 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...558

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:671

gcctcggaca	caaagccgat	gaacgtgatt	atggcatagg	cgcccaaata	tgcgtctttt	60
gggtatcaag	aaaatgcgct	tgatgacaaa	caacccggca	aacgtatcgg	actggaagct	120
ttcggcttgg	agatcgtaga	aaatatcccc	tggaactcgc	cccaaatacg	tacaacgagt	180
tctatctgcg	caccaaaaaa	aacgtatggg	gcacgagctg	cacaacatca	aataagaagc	240
gattcgcttc	ttaacagggt	cttaaaaaag	ccgtcggacg	tttgtcatac	gttcgacggc	300
ctttctcttt	aatcggcgaa	aggcgatgtg	catgcggttt	cctctcttta	tccgttatga	360
aactgttgca	caataacctc	ccacctcctc	attcgatcaa	gacagacaca	agcattgatt	420
cgacgaagaa	aggaagtatt	tatgcaatct	cttcaaagct	caagtatacc	tctgatggaa	480
acttggggaa	tttctgtttg	cttggtagcc	atatcttgag	gtttgatctt	tcctgaaaaa	540
cttagaatca	gctctgcg					558

(2) INFORMATION FOR SEQ ID NO:672

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 608 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...608

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:672

ggncgttcat	aatcttctgc	gttttagttt	cttattagct	tgatttctgg	tttacgttgg	60
aatatgagtt	cggcaacatc	tacggcaggc	gcattgcttc	gdataggttc	tctccaagct	120

tttctatggc	ttcgctcaat	tcttcgaaaa	accatcctct	tttggtagcg	caggcagaga	180
aagagcgtgc	tttgcatttg	ctctaacgca	aaagagagtt	tggagtagct	acatgagcgg	240
tcgattgcga	accactaaag	ctgacaccat	ccatagagaa	aataactcct	tcgattttctc	300
agtttgcccc	tttgttttga	attgtacttc	aatacctcgc	tttgcagttc	ggaggtaagc	360
tcttgccagt	tcgtgcactt	gggtagtgca	gctttattgc	atcgaagatg	gcatacctaa	420
gttgatcatt	tcctcttagg	catgacgttt	tacagcctct	tttccttcgc	cccatttcag	480
cagggttaagc	tcggtgagtt	ctttgcagac	ctttgttgag	caatactttt	cattgctggt	540
gaaattgttt	tcccctcatt	attcacacga	ttgatacaga	tgtgtaaggt	gggtgcttcc	600
ctgtcaag						608

(2) INFORMATION FOR SEQ ID NO:673

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 494 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...494

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:673

ggccgtaaaag	cgaaaaaaac	ggattccgcc	gctccgacag	caaccggaga	caggactgga	60
tggcttacct	gtaaagaaca	aggagtgtct	tttcgtcccc	gagaaaacga	agccttatat	120
ccgaatgggtg	aaaaccggag	gcggggaacc	cgaaaagacg	accgaacctt	aaccttacta	180
tctgataccg	aagggtcccc	gtcctccttt	ttccatggcg	gatacaaata	tattgaatta	240
taaactgaaa	tccaatcgta	tgaaaacacg	aaaaacgatg	tgtatcgccc	tgttcttacg	300
acgctcgcaa	ccggagcttt	tgcccagggc	aacggcatgg	ccgaatcaac	gaagccacca	360
agatggtaac	ctcctatttc	gacccggcca	cgaactgatc	tacgccatcg	gagccatagt	420
cggcctgatc	gggggagtc	agtctaccag	aaattttctt	cgggagaccc	cgattccagc	480
naggaccggn	gcct					494

(2) INFORMATION FOR SEQ ID NO:674

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 974 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...974

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:674

```
agttattggca cgaaggcctt cagaaaaataa cggatgatcaa tcccccttate ccacttcgga      60
acaaggggtgc aaagcctttg ccgacaatac ccccggtgcat tcgcccattgg tatcacgcac      120
ctctatgacg aactgccgca ccacncctgc agtcgctcaa gcacgcgtctc ctcacctatt      180
tcggcaagac cacttatatc gtatctaccg caagggaacgc tacatcacca tccaagagca      240
ggacttatcc gtgacagctt tgtccgggcc ggattttcat ccgatctgat ccgcacgatg      300
cgatgggtgta catgtacgaa ctgcagagcg ccatggtcaa gaggactgaa tcctccgggt      360
agtacgtaac catcgactat aggccgatgg aatttcacag ctatgaaact gcggtttcat      420
agctgtgaaa cttttattttc aagtcgagaa actatagttc catggctgtg aaactgtaac      480
cggcctgcac gcaagaaaaat tttgccgtac gggaaaaaat ttgcttgctg caggagagtt      540
atatccctcc ttatagaagt ttgaaaaatg gggcggggtta ttcgattcca taattcggat      600
taaataaata catttgcgag aaaagcgatt gccatgataa caggaagata aaccggtttg      660
tcgtgacggg aaaaatcgaa ccggaaattt ctgcgaccga gaatccgagt cggcgcgcct      720
catcaagtcc attgcaacgg caataactcg gtggttatct cgccacgtcg aatggggaaa      780
acggactgat ccaattctgc tatgacaagg aagaaatcgg caggaactac tatctttttt      840
tatcgacatc ctccacacat cgagcctgcg cgaatttact tactgctcgg ccgcgagata      900
tacgaagact ctgctgccac agagcaaaaa gtgatcaacc tcttcgtccc gcacctcaa      960
gtccgatcag tggga
```

(2) INFORMATION FOR SEQ ID NO:675

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 602 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...602

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:675

```
agcaaaactat gagtatatac gaatcggctg taaaaaagcc ggtcacaaca tattgatatt      60
cggggcgata gctatttttc ggctatttct actgagtctc tttccatcga cttgtatccc      120
aagattgaga cgagcaatat catggtctga cctcctatgc cggagccagt gcacgcgaca      180
tagagaacaa cgttacaagg tcttgagaaa tacgcttaac ggggttagca atctcaagca      240
cattattcga agagtcggga gaatgcttcc gtcattacgc tccaattcaa tgaagtgtgg      300
acatcgaaat ggctaccaat gatgtgcgag acaagctcga tgcgtctcca acttctgcc      360
cgatgatgtg aacaaaccga tgatcttcaa gtcggtagtg acgatattcc tatcaccatg      420
ctatccgtgc aggccaaaga ggtacgatgg cctgtcgaa gatcctcgaa gacaagggtca      480
cgaatgctct gcacgccttt gatgggcgta gtgcgggtgag cattatgggt actgtgaagg      540
ggaaatacaa gtgtattttg gaatccggcc aaactggaag catacaactg accgtagaag      600
ct
```

(2) INFORMATION FOR SEQ ID NO:676

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 443 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...443
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:676

gcataaaagg agcgagtgaa aggggtggca gtaaggagtg aaagtagttt aaaaaaaaa	60
ttgaggagct acttgcacga gtcctcaag agaccattca cggcattttt gcgacatatt	120
tgccctgcatt gcttgcgtat atcaatgtat ttagtatttt acacgtataa acaagagcat	180
aaatatggca accaaaaaac tgaatcgga ccaagctttc tgcaagtata cactcagctt	240
cgcaggatcg catgaaacac tctttcctgc gtcaaatcaa tgccggtttt gattgcgtgg	300
tatttcgcac actgctgaac aagaaataca ccaagacaca gaagcncata ggtaaccctg	360
cctacgatgc gctgttgatg ttcaagaatc tatcttgagg acttggtatg gttttgagtg	420
actacnaagg tttgtggagt gat	443

(2) INFORMATION FOR SEQ ID NO:677

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 838 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...838
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:677

aggatggcag ttcgtatgag aatatggtga gcacgcatgg acagccgctt cggctgccgg	60
agcatcattc gccgaaacgg tcaagaacct cggaggcatc ccgaagagcc gttcgccatc	120
ttccccgaag ttcgggaaat gtatgccctc gcttggcaga actggagcag atcatggcag	180
agcgtcgcga agaagacaac gttggcgcag caccatcct gatttggcag ccaagttcga	240
tgcggtttt cgggtcaaac gccccaaatc gactggaaag ctatagagca gaaaccaatc	300
aggctaccgc ctccgcttct gccaccgtgt tgggtactct tgcggagaag tggagaatat	360
gattgtaacc tctgccgacc tttccaattc agcaagaccg atggcttctt gaagaaaacc	420

cacgccatga	agaaaggaga	ttcagtggag	cattcctgca	gatgggtgta	tcggagctga	480
ccatggcctg	ctctgtatcg	gtatggctct	tcatggaggc	gtcattccgg	cttgcggtac	540
ttcttcgtat	tttccgacta	catgaaaccg	gccgttcgta	tggctgcctg	atggaattgc	600
ccgtcaagtt	tatctggacg	cacgatgctt	tccgtgtggc	gaggatggtc	ctactcacga	660
accggtggaa	caggaggcgc	aaattccctg	atggagaagc	tgcacaatca	cagcggccgt	720
ngctccatgc	tggctcttcg	ncggccgatg	tgcaagagac	taccgtagct	tggaagatgg	780
ctatgagaat	acgcatactc	ctacagctct	gatcctttcg	cgtcagaata	tcacgatc	838

(2) INFORMATION FOR SEQ ID NO:678

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1235 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1235

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:678

gaaatcttcc	aaatggctat	gctcgaaccc	aagctggcta	ttttggacga	accgatagcg	60
ggctcgatat	cgacgctctc	cgcatacgtg	caggcgggta	aaccgactcc	gctctccgga	120
gaatgctgct	attgtgatca	cacactacag	cgtttgctcg	agtacatcaa	gccggacttc	180
gtacacgtcc	tttacagggg	cgcatacgtc	agtcgggagg	agccgagctg	gctctcacgc	240
tcgaaaaaaaa	ggctacgact	ggatcaagga	agagatagga	gaataatcgg	atataaggta	300
gaagaacaat	atctgcaact	cttccgagag	aatcgcaag	caaagacagc	cactccccac	360
gggtactcaa	tgagcaacgg	gagaaggcgt	cgtggctttc	gcctcgaagg	ggttgcctcg	420
gtatggcact	gagaactatc	acgtaccgat	ttgtctgaac	tattcggtta	tgactacgga	480
gtaaacctga	tcgtgtcaat	ttcccaatca	gacagaaaga	agcttttcat	tgtacgttgc	540
ggatttggac	acggatcttt	gctacattgt	caatgatgca	tacgataaga	atggagtcgc	600
gtatccgaat	tgccggaagg	agcatttgtc	ggcagtcgag	cgattttgcc	ctcagccatc	660
cggagatagc	agctcgttat	tatgctaagc	cgctgcaccc	gatcacgatg	gcatcattgc	720
attcagcagc	atgttgctca	agatggattc	atcatatc	tgccggatgg	tgctgtactg	780
aagatccgat	ccagctcgta	caactgctca	gagccgacat	ggagattctc	gccatcgctg	840
gttactcatc	atcttgggaa	aagatgccga	agcctctctg	ctatatgcga	acacacgctg	900
gatacgcat	ctttcctcgt	aacggaagtc	gggagatatt	cgctgcggag	aacagtcgat	960
tcgccttgta	cgatcttgaa	aaagcagcaa	gaataccaaa	cgtatagcat	cggttcatgt	1020
acgtcaagcg	agaattcgaa	tgtgacgatc	aactgcatga	cgattcacia	cggtctgaac	1080
gcaacaacta	ctactgccat	cttgaaggag	aaggggctga	tctgacctgg	gcggaatggc	1140
tattgccgaa	gggaaacagc	atgtcgataa	ctacagagga	tagagcatct	cgttcccaac	1200
tgccaaagca	atgaactctt	caaatcattc	tcagc			1235

(2) INFORMATION FOR SEQ ID NO:679

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 546 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...546

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:679

ggagaattgc	tgtttgcaga	ttttatttcg	ttcgaatcct	gacanaagtc	gaatTTTTgt	60
gccctctaca	tttcatTTTc	gcttaagttt	cgaaccgctc	gaaggTgtgg	catgtacaga	120
aaaagggttg	acagttggag	agaatcgTtc	aactgtcaac	cTTTTTccg	tatggTgtca	180
ttcgccggag	gaatactgaa	ggtattaagc	atccatgcag	ggtaggccc	attccgacag	240
gcttattcct	tgatagatca	ggttctcccg	ttggatcagc	gcagggtgc	agaagcttat	300
cggtcagttc	ttcgccatgc	agattacggc	cgatgatagt	gcctcgTtg	cgatcagcag	360
ggtatgaggg	atagaatgga	cgccgtattg	caagctgccg	ggcttgccca	gnctttgtaa	420
tcggacattt	gcggccatgt	gtaccgagcc	ttgcgatggc	tttcttccat	gctcccggat	480
tttcatcgag	gaaacccta	cgatctcaag	tttccccttg	tagtcggcat	aaaccttgac	540
agatcg						546

(2) INFORMATION FOR SEQ ID NO:680

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1119 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1119

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:680

ggagatcaag	accgtgaata	ccatcggacg	agtattcata	tcagccaatt	caggcgTtgg	60
cgcagttctc	tnattgtaag	gnccatcgat	ctctccttcn	tgcgccagag	gagaatgagt	120
ataatacctc	ctatcatacc	acccaaagag	caaagtgatc	gatgttgcta	ccacctgcc	180
tcggtgcaac	accaagaaca	gctctacaag	gccgtatata	ataacaaacc	acttggttt	240
gatggaatgg	ggataaagaa	aaggtagatc	tcaccattgg	ggaagagcat	cccaggcca	300
atagcaaccc	gaatacggct	ccggaggcac	cgaccgtcgt	tggaaattga	ggaaagcact	360
cttgagcatc	tccgtaccct	ccggaaagcg	aaaaactcgg	ccggactgtt	cacgatgggc	420
atcagatcca	cagcccatac	gtctgctgtg	ccaatgcagc	cgtaagacca	caaataacat	480
agaagatgag	aaacgcttcg	ccccccaaaa	ctgctctatc	agccgtccga	acatccatag	540
gaaaacatat	tgaagaagag	atgcgagagg	ccatcgtgta	agaacataag	gaaacgaact	600
gtatgggatt	gaaactgtct	gcctgaaaaa	aatgcagccc	atggtatcgt	tcagatcgat	660

attgaatcgt	gcctcaagta	cgtaagcgcg	aacaggaata	tcgcattgat	gatgatcagg	720
ttctgcgtta	cgggtgagca	aactgataat	tcctttctct	aaagctattc	atattatgga	780
ttgtcttggt	ttctatttca	ataccaagta	ttcgtgatgg	gacgattgct	ctgtgatant	840
tcagatcctg	caagagtga	ctcttcnccg	atatgacgaa	anataggact	tgtatgctcc	900
tatagggatg	aaactggccg	agatagccca	gagtgcattg	cgcgagtga	gttgcaggta	960
agcgatgtta	ttttcttcaa	tcgaaattgt	agttcgcatt	gaatccgaag	ctccagttcg	1020
gtgtaggctg	atattgccgc	gnaagctcac	cctctgcgtt	acccggtagt	agtgtcctn	1080
ttantgacnt	tgtacntatg	gcagtcggta	gcaatattc			1119

(2) INFORMATION FOR SEQ ID NO:681

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1169 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1169

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:681

ggacggaagt	atgcgcagat	gaaagagcgc	ggccttaaga	tgaagggaatc	gacctttata	60
atcccaacgg	cacatcgctg	aaagatgccg	tagtgctatc	gacggaggat	gtacgggcga	120
ggtcgtttcc	gacgcgggac	tggtactacc	aatcaccact	gcggatacga	tatgatccag	180
gtcacagca	cgctcggcat	aactatctcg	aaaatggatt	ttgggcatg	agagaagcgg	240
atgaataccg	aacaaggata	tttcgctggt	attcatcgac	aagatcgaag	atgtacagac	300
tacgtcaaga	aagatctcaa	agccatcaaa	gatcccaaca	gcaggactac	ctctctccga	360
agtacctgca	aaagttggct	gacaagaagg	ccgcaagaac	ttttctgcca	agaatccggg	420
gctttccgta	gagatcaaag	cttctatggg	ggcaatctct	acctgatgtt	tacaaaaaag	480
acttatacgg	tgttcgactg	gtgggagcac	ctcccaccag	cattggcaaa	ttcggtgcca	540
tacggacaac	tggatctggc	ctcgtcatac	tggcgacttc	tccatcttcg	tatctatgcg	600
gacaagaatg	gcaatcccgc	accatactct	gaagatatgt	tccgctcaag	ccgaagcgtt	660
tcttcaatat	ctcccttggt	ggagtaaaga	gaacgactac	gccatgataa	tgggtttccc	720
cggtactacg	caccgtatct	cacggcttcc	gaagttagacg	aatggaaaag	catcgacaac	780
gatatcgcat	ccgcatgcgt	gatattcgtc	agggtgtcat	gctcagggaa	atgtggccga	840
tcctcagatc	aaaatcatgt	attcagctaa	atatgccgct	tccagaatgc	ttacaaacgt	900
gctatagggtg	ccaactgggc	gatcaagaca	ccggcctgcg	tcaaaacaaa	caggcgatgc	960
aggacaggct	gatcgcattg	gagcgaagca	gggtactcct	cgatatgaag	aggccgtaca	1020
cgaaatcgag	ctacggtagc	caagcgtgcg	gatctgcgcc	gtcgttattg	gatgatagag	1080
aaggcatcat	ccgtgggcatc	gagtttgccc	gtctcctatc	cccaccgaga	tgagacgaaa	1140
gctctgcaag	gcaatgatgc	ttcgtctgc				1169

(2) INFORMATION FOR SEQ ID NO:682

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 979 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...979

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:682

gctcgaagca	gagaaggccg	taaacaaggc	tcgtgcagaa	gctgtggcaa	gaaaaaagcc	60
gcagaggcca	aagctaaggc	tgaagcagag	gctgctgcgc	tgccgaagaa	gctgccgaaa	120
cggaagaaac	tcccgtggaa	gctgctgcga	agaagctcct	gctgctgaga	gcgcagaata	180
attactgaag	aattttcaaa	tgacagaggg	ctgtgacaaa	attcagtttt	gtcacagccc	240
tcttttttgc	tccttgcagt	cggttaggca	accggcttca	tcttgaaacc	ctactttttac	300
gtgagctcga	tataaaggaa	tggcacaaca	cattggttat	taggtgtttt	attttccaca	360
cagtgttttt	caggcactta	tattgctttc	agtggtttt	tatctacatc	tgaagcccaa	420
tgacttagaa	gccgccccct	ctcccgatca	ttatgcagcc	ggagaatcac	aaaagagtat	480
gatttacagc	acttggtatt	tttatgggat	gttcgccttag	atcgaactgg	cgttactttt	540
agcttttcga	tgacgtagaa	gcaaatcagg	ttaagattga	ggattgattg	cctctccgag	600
gtgttttttg	ccttttgggc	caatttgacg	cccggttttt	cggattaata	gccatagccg	660
gaaaggcaaa	gtccatcttc	acccacccgg	tcccatatgt	ctgaaacgtc	gataccccc	720
gttcgcctta	agttgccaaa	gatcgctcgc	ggttcaatac	atcgtcgcct	gcggtgcaca	780
agacttactc	cgagttgagc	cgatccttac	ctgcgctttg	tagttgttga	gacatgattc	840
acttcgatga	tcctattagc	catacctgtc	tctctgctaa	ttccgaatct	tttatgggatg	900
atatttttct	gaccacagta	cacgtctgac	tatcgatccg	aaccaaaaat	gcacgattta	960
agttcgaatt	tctgaaaaa					979

(2) INFORMATION FOR SEQ ID NO:683

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 528 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...528

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:683

ggaaggggca	aaagggatan	cgggccatag	tcaaacaaag	acctcccaag	atggagatac	60
gctcggccat	tatatcagtc	gaaacgaaag	actgaacaaa	gctttgcttc	ggtatgcaaa	120
gtgccgaaca	gtaagaaggc	ttctctcctt	atcgcttatt	agcttcgtcc	gacaattacc	180
atcttttggg	aatagactac	atactggccg	gcaccatcag	attcggttgc	agctcgcac	240

tatggttgct	ctatcaaggg	cgatttgaaa	tacggattcg	ggcgcagtaa	tccgatggag	300
gaatcagttc	gctggcccat	cgaattcggt	tcactcatcc	tgtagcggcg	ttctcatcga	360
tctcaccgct	cctcttcctt	cgaatgataa	acttggtctt	tgcttacttc	caaggtcggc	420
gattaggctt	cgaatntatt	ttttaagtgg	gcgatttcgt	cgagattgac	gagtttgttc	480
atgatggcat	gatgggcaag	ccactggggc	tgngaattctg	caattttt		528

(2) INFORMATION FOR SEQ ID NO:684

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1484 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1484

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:684

gggcacatgt	cngcactgat	caccctcttg	ttcgtgctgc	atctttcgtg	tgctccgcgc	60
gaagaaccgg	aagaactgat	actcgtcaat	ttcgggaatac	ggagctttcg	tccggagctt	120
tcgagccggc	accacaggaa	acagcatcaa	tcccgatgta	caaacggaac	aaactccaac	180
gcagaaacag	cccgtatcaa	aaagcagcag	gcaccggccg	aatctgatct	gcgtcaggac	240
gtagaccggc	acctcacttg	gccaaagccg	aaaaggcccg	tcaagaggct	gaaagaaacg	300
caagcgtgaa	gccgaagagg	ctcgcaaacg	ggcagaggct	gcgcagaagc	cgagcgcgaag	360
cgcaaggccg	aagcaggcaa	ggctatcaat	aaaatgtggc	cggagcattc	ggacgaggcg	420
ccgagcaagg	caatacgcaa	gttcgggcac	acaagccaat	ggcaatcagg	gcaatcccgg	480
aggtagcggg	cttcgtactc	gcttaccggc	cgtactatcg	tgggcaatgg	cggctatccg	540
aaaagcctcg	ctacagcaaa	ccgattcgag	gaacggtacg	agtaaacacg	tagtaaacia	600
tgccggacgt	gtgaccgatg	cttccatccg	tctgcgcgta	ccaatatcac	ggatgctgcc	660
gcccagcgag	cagctataga	agcggcaaaa	ctactcgctt	caatgccata	gcgggtgggtg	720
gagatcagga	gggagaatca	cctatcatct	cgacatcaag	taaaaaacat	aagggaatatg	780
aaaagacagc	attagtattt	ctggctcccc	gtttcgaaga	gaccgaagcc	gtagcacgct	840
cgatattctt	cgtcggggag	gtgtagtcgc	ggaatttggt	tcattacgga	ttcgtcttat	900
gtagagggag	ccaacgggat	caccgtcaaa	gcgatcgctt	gatgactgat	ttgccgacag	960
tggatgcttt	ggttttgccg	gaggactccc	cggagctgat	aatctgaaca	gctgtgaacc	1020
tcttcgccgc	ttctaagcga	gcattatgcc	gccccaaaagc	ttgtggctgc	tatctgtgtg	1080
ctcctttggg	attcgggtgg	ttgggttttg	tctgtggcag	aaaagctctt	gctatccggg	1140
ctttgaatcc	aaactcgaa	gagccgatta	tacgggggaag	ctgccacacg	tgacggacat	1200
gttattacag	gcaaaggccc	tgccctcgct	ttgcatttgc	catagaagta	gttcgttacc	1260
tctgcgggtg	tcagtagccg	atgagatcgc	taccggtaca	ctcttcagat	aattcgaata	1320
tccataaccgc	acaaaaagaa	agtgtcccgg	actgcaaggt	tcgggacact	tttttttagg	1380
ctcctatgct	tctcgaagca	ctcgtctcct	tatcttttag	ggagtcgggg	gtaaaccgca	1440
gtgcagccca	gttggttacgt	gagcgtgttt	cgaaagagtc	agac		1484

(2) INFORMATION FOR SEQ ID NO:685

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2189 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2189

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:685

gggcctttttc	ttcctacttc	ctgattctga	ttatggccgg	acatatatga	agctgacagc	60
tatgtgtttt	attcctccta	ctcttgccgg	tatgatctga	tctacaatgg	gaggtggttg	120
gcaggcggta	gcgtgatggc	ttttttccgg	ctttgcaagt	cttggctaata	catgtacaga	180
tgagctatta	cttcctttcg	tcatgttttt	catggtgttg	gctttcttgg	cagaagccat	240
tcgaaaaaac	gaatccgaca	cttccttcctt	tcctcggcag	tagtcgctcat	agcagtctgg	300
tgggtatagc	tgtgaatagt	accaacctct	tccacacctt	ccatacggca	aagagaccat	360
gcgtggagggt	agcgaactga	cgctcaagca	gacggagcac	ccacggatca	agtgacgcat	420
gagaataaaa	gcggactgga	caggcctata	tcacacaatg	gagttatggt	ataggtgaga	480
cttggtcgct	cttatccccg	atattaaagg	aggatcctcc	ggttacttgg	gttatgacga	540
aaggtgatgg	aaaccgtgaa	tccatcctat	gctcaggcga	tagctcgttg	aatcgctact	600
ggggagacca	accattcacg	gcagggcctg	tatatgtgga	gctttcgttc	tctttctctt	660
tgtcttgggt	tgttttatcg	tcaaaggcct	gtcaagtggg	ctttgctggc	agccaccatc	720
ctgtctattc	tactccttgg	gggcataata	tgatgtggct	gacgagcttc	ttcatcgacc	780
atttcctctg	tacgataagt	ttcgcacggg	atcgtccatc	cttgtgatcg	ccgattttacg	840
attccggcct	tggccgttat	ggctttgggtg	gaaataatca	aaagggaaaa	cccctcctta	900
agcgcgaacg	tactgcttgg	gttgcagcta	ccttctgacc	cttgggggcat	cgcttctttt	960
tgcccttggtg	ccctccctgc	cggtttgctg	agcggggcagg	aggaagctat	gttccaagaa	1020
gcagcaggta	ccctgaagca	gcagctatca	agactaccct	cgtgaatggt	cgctcgggat	1080
attagcttct	gatgcatggc	gtagcttcgg	catattgggt	gtatgcgcac	cctgttggtg	1140
ctcttctttc	aaaagagact	caaagcaact	gctctatggt	atctttggcc	gtgatcacgc	1200
tggtcgatct	atggacgggtg	gacaacgcta	tctgaacgat	gagcatttca	tagatcccga	1260
actcgtcagc	caactgctgc	acctctgaca	gaagcagaca	agcaaactct	tgagacaag	1320
tcgtcgggta	ccgcgttctg	aatctcaccg	tggacactta	taatgatgcc	acacgagccg	1380
ctggcaccgg	agcatcgggtg	gataccacgc	tgccaaactc	cgcgttatca	ggatttgatc	1440
gaacaccaac	tgagcaaagg	caatcgcgaa	tagtcaatat	gctcaacacc	aagtatatca	1500
tagtccccgg	agaaaacaac	ggccctctcc	catgtcgaat	ccggacgctt	acggtccggc	1560
atggccggcg	gcagtatccg	ctgggtagga	aatgccaatg	aggaaatgat	ggctttgaca	1620
gcaatcgact	gacgcgtgac	atcgctgtcg	tggacgaacg	attctctccg	aatcgctcaa	1680
aaggctaccg	gctctgactg	atagcactgc	ctctaaagtc	tgaaagaata	tgctccgaac	1740
agacagggtg	acgaagctgt	gagccacaac	ccatgctggg	catattttcc	gagatatact	1800
atcctcatgg	ctgacagcga	ctatcgataa	ccaagctgta	ccgatcattc	gtgccaaacta	1860
taactccgtg	cactggagggt	tcctgccggg	cgtcataaaa	tagaatttcg	tttgatccga	1920
agagcctgca	catcacagaa	gctatagcca	agacagctct	gcactactcc	tgctggggat	1980
tgtgtggcg	atagcacgcc	ccttcttctg	cgcggaaaagc	gtccgacagc	ctgacatatg	2040
aagacgttgt	tcgaacgaga	gagcttttgt	ttcggaaaag	aaccggttct	gctacgtaat	2100
aggagtattg	gtctatttct	gctctatttc	ctcttttcaga	aagtcattat	ctgctctgta	2160
ctctggccgg	cttgccggat	aggcacttc				2189

(2) INFORMATION FOR SEQ ID NO:686

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 760 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...760

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:686

ggggtaacct	tcgcgtatct	ctgagtcggt	tgcagggttcg	aatgtccac	atcttacaga	60
tagtttctat	ggggactcct	gcttccagag	taatcaataa	gcgaaggaat	gccttccggc	120
atggtaggtc	aggtcttcct	ttatgtcgcg	agaaccgcaa	ggcatttcac	caggcgacgt	180
agattggggt	ggtacacatt	ggaaagagtg	tcggacgggt	atcgtcgttg	tatttctcta	240
tcaatcaagg	gcttcgggca	ggagtttgac	acaggcctga	agttcgtttt	tcttcgacgg	300
tatttaagcc	atagacttcc	ttcatcatcg	gtgaagagat	tgttcgtgta	accgataaccg	360
catcagcata	ggaagttccc	gtatagcagg	caagaggaag	agatctcttg	ccaagatatg	420
agagctacga	tgttcgggaa	taccaagtca	cggattttct	caaaggattc	ccgacttagg	480
gctttcgggt	cttctcctct	tgcttgggga	gactgaaatg	agcgaaaaaa	catttatcgc	540
atagccttcc	ttgtaggctt	tacggcatac	ttttttgatg	atggccagta	gtgtcggctg	600
gtctctatgg	taagcccttt	gtcgtccacg	acaaaaactg	atagtcgtga	atgaactgtt	660
cggtcagctg	accgaaggca	atgtcctgga	gtggaatttc	ttttgaatga	actccgccaa	720
ggctcttcggt	gtagaatagg	cgggtatggt	cctttgcccc			760

(2) INFORMATION FOR SEQ ID NO:687

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 831 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...831

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:687

tggccccgga	aacggtnaag	ncaagattaa	gatnaaatgt	caaaggccgt	ctgacgtcag	60
gtccaatcgt	tttgctnata	cactcgaaat	gaaggaagcg	atgataatgt	gccggcttgt	120
ggcaatcaat	accatcgaaa	ttgtcaagtt	gaggagattg	aaggtttgtg	gtgtgaaggc	180
gttcagtgtg	cagaaatttg	gtcgtcacgg	gtgccaacaa	gtttgaattt	gagcttgata	240
agcctacttg	gatattacgg	ttatttcagc	agtatcgact	ttcagtggtg	gtaagaaaat	300
cttacaattg	agtataaggt	aagcaatata	tcgaccaccc	agctctgaaa	ccgggagcgg	360

ttgtaacgct	gttcagcgat	aaggataaca	ataagtcctc	tccggcggag	atgttgctgt	420
tgcaacacag	gagttggctg	cgaataaact	aataccacac	ctcttacgca	gataatgaag	480
gtaaaaggag	gagctcttcc	catacgggca	atttggttct	tacgatactg	cccaaagacg	540
ttgctactgt	gagatcaa	cccctatggt	cacgttaaac	catcttcttc	gaattactgg	600
atcggaggaa	ctgtaggtaa	gcctaacgaa	tggaaaggcc	gaacaactgg	accaatgacc	660
aagttcccga	tgcggcagag	gatgttaatt	cgccactgag	gtgaataacc	cgactgatcc	720
gaataatccg	aagtcggtcc	tgcgaaggag	aacctgcac	tggacgatat	acaccagaat	780
ggcaagccgg	tcgcgttatc	ggcaacctga	tcaatgactc	tgacaaagat	c	831

(2) INFORMATION FOR SEQ ID NO:688

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1230 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1230

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:688

gcntacgccg	gctgaagcac	ttacgggacg	atacataggt	gcacgccggc	ggacgaattg	60
cgcctgatga	tccatcgcc	ttttcgcatc	gggacgggtg	ctccctcatg	gccaccttgc	120
tctatctgct	gttcccggcc	gctttgcttc	gggtgctgag	gacaaatacg	aagtgataga	180
gcatgctcgc	ggttttcttt	ctgggcagga	gtggtaccga	tcgtctcctt	tgccgctttc	240
ctgtggatgg	agtattcgtg	ggggccactg	catcaaaagc	catgcggaga	gccagacagc	300
tgctttcggt	gttttcttcg	ccactttctt	cctccttcgt	ggaccttggg	cgagacagcc	360
ctttggctcg	ccttcgtcct	ctacctcctc	accgcagcct	gatgcagaca	gtatggtagc	420
gcaggcattt	tttcgccacg	atcgtctgca	aagggtgctga	caccggaatt	ggtttgtgca	480
taactttccc	aatcaagcag	gagaagagag	aatcagatac	tcggatcggc	agcggctcct	540
cggttgcata	ccgcacttta	gccccaaa	ataactttgc	caccagtggg	aatccaaaaa	600
caaatccaac	caatgaaacg	aataaatctt	ctcgcagttc	aatgaagctg	acttatatag	660
caatagcggc	cacggctatc	accctgtgtc	cgccctcatg	tctgacaaag	gaaaatccgg	720
atacaagatc	gttggaccgt	ggagtatgcc	gccgatggcg	ataccgtatt	cctcgaatct	780
atcgaaacat	ggaagtcacc	cgtcttgatt	ggccatcat	ccgcaacggc	acatcagctt	840
caaaggcaga	caggattcga	ccgtcgctcg	ctacctctcc	tgatgaccgc	taccgatgta	900
ttcagcattc	cgttctttct	tgagaacgga	ccatcgaggt	aaagatgaag	agcggaaaacg	960
gaatccgtca	ccggtacccc	acgaacgaca	tctatcaaga	gatacgcagc	aaaatggccg	1020
aaattatgac	aagatgaatg	aaatttacag	cgattccacc	ctcacggaag	agctagcaag	1080
gagaaaatgg	atcagatgga	acgggaatac	accatcgcg	agaaaagagcc	gtgaagaaaa	1140
atatcgccaa	tcctgtagga	gtctttctct	tcaaagacaa	tacttcgaaa	acagtctggc	1200
cgaaaatcag	gcactattcc	gacagttccc				1230

(2) INFORMATION FOR SEQ ID NO:689

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 902 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...902

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:689

```
tttagtatat tngtgacgga tgagacntt ttgaatagag caattcctta tttccggccg      60
gattaccatc gaccaaacat caggtagtca attccttcag tcgttggttg atggtttcgg      120
cttcttcaaa tcggttttcc aaacacaatg tatcaaacga ctgaaaagct ccggataggc      180
atttccgatac acggaataac tccctcggct ccttccttta taaaggaaaag ggagagatga      240
tcgtccctga taggacaatg aaaggatcgg gtttttccag cactattgca cgcattgatac      300
cacattgccc gaagcttctt tgatgccgat gatattcggga cagctgtagc caatctgaga      360
gtggtttcgg acttaatatc cacaccggtt cgccggggac attgtagagg atgatggacg      420
tatcagtaga ttcggccaaa gcctataatg tctataaatg ccttcttgcg tgggtttgtt      480
gtagtaagga caacggataa gatggcatct acaccgggtc tggccatggg cttggaatcg      540
attgacgagg cgttcgggtg agttgcctcc ggctccaacg atgatcggca ccgtcctgcc      600
accgcctctc tgactgtttg caatatcgca gagcgctggc atcctcgatg gtgggcgatt      660
caccggttgt gccaaagtact acgatgagtt ggacacctcc gctacctgat aatccgctaa      720
aagtcgaagc gattctggtc taccgcgccc ttttcgtcga anggggtaat cagggaacc      780
cccaacctcg caactgtgct ctgtcaattc gtattctatt ttagaaacaa aagaaaaata      840
atgggagcaa tgganttgaa gtgggcattt acaattcggga gaactgcaga agtcggaaaa      900
ac                                                    902
```

(2) INFORMATION FOR SEQ ID NO:690

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 692 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...692

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:690

```
tacaggattg tcataattgt caatgagttc cctcatatat ccctgctctg tataaggctt      60
gccatataat aaccgacggg atgccctccg aagagcacag atcagccacg gggtttatact      120
ccccgtcttg ggaggtattc ggatcgaagc gatggacagg gagtcgattc gggctaaagt      180
attcgggtgca ttggccactc ttctttatag gcttttacga adtcgtcgcc gaagaattgc      240
```

atgatttgct	gtcgtttctt	ttttgtcaa	tcagatctgc	tattccttcg	ttctgaaaag	300
atcgaaaagca	ttcaaaaaag	aatctccgga	tgaaccttga	taaccatttc	gcgatagttg	360
tggaaaaaact	cgtgagtaaa	taggtctaca	agtcttcttc	ttgcatcgaa	agcgcgagat	420
tcagggtcaag	gaaaatagca	tatcgcgtag	actggcatcg	ggaatagtgg	caatcagaaa	480
gaggtcgttc	atagcggatt	ggatgaccag	gctcgttcgg	gtaagtattt	ttttgtcttt	540
catttgccct	gtacaatagg	gtgagaaaat	ccgtatgcag	aagaaaacgt	cggcttcttc	600
tcgtttacgg	gcgagccgac	agatattttg	tctgaggcaa	gaaggcatat	tcgttattgt	660
agcaggatgt	tcaagatgct	tgtccgttct	gc			692

(2) INFORMATION FOR SEQ ID NO:691

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 688 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...688

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:691

tccttgccga	tggttgttct	ttcggcactt	tctcagatta	ctatcgtttc	aaaagcaagg	60
ctgattcgct	caaaaacgag	gcatgacctg	tgtgtctcgc	gaacctcaag	catatacntg	120
aaagaaactt	gtggaaatct	ctgtttgttg	gcagccatac	gcctgctctt	tgatctttcc	180
tgaagataca	aagaataact	catacgagag	gatactatgg	tctcatatag	aacgttttcg	240
atttgatgta	cttctttcgt	gagattgcca	ttacatgctt	gcagcgagga	atctccgagg	300
gagattgcct	gtggccgaac	gcaggccatt	gctgatctct	cgcagaaaac	acagtctgcg	360
aattggctga	agatcataca	caccggatgt	tgcaccctgt	gaagtgtttg	ctatgtttgt	420
ctacttgaaa	ctctgccaaag	aattcttaat	caaggagcca	ggcaacaagc	gaacaactcg	480
ggcgaatggg	ttatatttta	tactcatcag	agtttgtttt	tgtgataggc	caagggtaaa	540
ttatttgccc	aggcgactct	gataacaaac	gaaggagagg	caccgtgtag	ttcctctcct	600
ttctattgcc	aaaaactgac	atttaggaca	cgattgcttt	gacagagtag	atagtggcct	660
gagaaganaa	aagaatgggt	aaaatcgc				688

(2) INFORMATION FOR SEQ ID NO:692

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1135 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1135

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:692

gaactccgcc	gcaaaacgat	tcgactgact	ttcgctgcac	ctgccgtttg	tcggtgcctt	60
atagctgttt	ttcgtcattt	caggtatgct	gcctgctttc	caatcagttt	atttgatttc	120
ctttgcgtcc	agtgaagca	gtaatgcgag	tgaatgggtt	agcaggaacc	ggtagatttc	180
tttatttctt	tggatatgata	tgaagatatg	acacacagat	cgtaaaccga	attcggcaat	240
ttctctttac	cttgtttcat	taaaaaacca	aagatgagta	tgaacatcta	cgtaggaatc	300
tgaactatcg	ggttcgcgaa	gaagacctca	caggtctggt	gcacagtatg	gcgccgtaac	360
gagcgcaaga	gtaatcacag	acagagaaac	cgccgctcac	gcggattcgg	cttcgtcgaa	420
atggaagacg	agaatgatgc	agccgtgccca	tcgaagagct	gttcgatcag	gaattccaag	480
gtcgcaagct	atcgtaaaag	aggcattgga	acgtcccag	cggtgctcctc	gccgtacttc	540
cgacacgaag	atcgctattg	atccttctcc	cacttccggc	aagtcgtaca	caacgccgat	600
acggcttttc	ctctgagagg	tcttctctta	ttattctacg	acacgaatta	caagacaggc	660
cgcaggcaca	ccatcatacg	gtgttccctg	cggccttctt	gcattctgctt	gtaccatgac	720
agcccttgtc	acaaacatcc	caaccgcaac	tatatcggc	tctcaccgaa	cattccaccc	780
ccccaaactg	ccatccgccca	cagagcagat	agcatcttcc	atcaatagac	catgtatcct	840
ctcatgtgag	accatagtat	cctctcatat	gagaccatag	tacctctcat	aggagaccat	900
agtatcctct	cgtatgagac	catagtatcc	ttcatagtag	accatagtat	cctctcgtat	960
gagaccatag	tatcctctcg	atgagaccat	agtatcctct	cataggagac	catagtatcc	1020
tctcgtatgg	accatagtat	cctctcatgt	gagaccatag	tattctctca	taggagacat	1080
agtatcctct	cgtatgagac	catagtatcc	tctcatgtga	gaccatatat	cctct	1135

(2) INFORMATION FOR SEQ ID NO:693

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 406 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...406

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:693

tacttctttc	ttaatgagac	tgataattcg	ttgttgggtt	gatgtatcct	tttgaacgtg	60
atattgaaaa	ggctcttttg	actggcctgt	cttatactga	ttgttaattc	ttctcctcgg	120
attcgggtgc	tttgtgatcc	gatgtgtcaa	tatggcactg	gtagccccc	tcgtaatcac	180
atcgccatcg	ttcagttgca	ccattctttt	ttgtccagaa	gacgtcctcc	gacaaaagta	240
cctacagact	atcgtcacgc	gcaatcgaat	aaagaaaaga	tccgtctttt	ttngggtcac	300
tcgaagtatg	cagtggtgtc	gtcccatgct	tggatcaccg	gtcatactgc	aatgtccaca	360
accgagtctt	tgttgcgacg	tcctatcccc	tttctctctt	tctctg		406

(2) INFORMATION FOR SEQ ID NO:694

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1241 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1241
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:694

tccagcagag	cagccacgat	acgcggcaag	gccaaaggcac	taccgttgac	gtgtggcaaa	60
gctccacttt	cttatccgca	ttgcgataac	ggcacttcga	cgattggctt	ggaagctctc	120
gaaattggac	accgagctaa	cctccaacac	cgctcttggg	cagccgaata	gacttcgaaa	180
tcgtaagtca	atgccgagtg	aagctgatat	ctccgccgca	gaggcgaagg	atacgccacg	240
gaagtccaac	ttatctacaa	ggccttggac	atagccgacc	atctgatcga	gctgtcgtag	300
gagtgttcgg	gcttgtcgat	gcagacgatc	tccaccttgt	tgactgatgg	aggcggttca	360
gaccgcgaac	atccttgccg	tacgaaccgg	ctcgcgtcgg	aagcaagccg	agtaagcggg	420
caggagaatg	ggcaattcgt	ctcggagaga	atgacatcgc	ggaagatatt	ggtcaccggc	480
acctctgccg	ggggatcaga	tacaggttgt	ccgccgtgac	atggtacatc	tgcccttcct	540
gtcagggagc	tgtcccgtac	cgtagccgga	atcctcattg	actacatagg	cggctctatc	600
tccgtgaagc	cggcgttgcg	ggcttcatcc	aagaagagtt	gaccaaagct	cgctgcaggc	660
gtgctccttt	gcccttatag	acagggagcc	tgctccgggt	atcttgacgc	cgagttcgaa	720
gtcgatcaga	tcgtattctt	ggccagatcc	caatgtggga	gcttgtgcgt	tccaagctcc	780
ggcatgtgcc	gcctgtcttc	acacagacat	tctcctctgc	ggtcttgcct	gcaggacaga	840
ctcatgccgc	agattcggga	taagcagaag	ctggtggcgt	atgcattctc	cagatcagct	900
ttccgctctt	ccagatgggt	gctcccggct	tcatatcggc	tactttcgca	cggatggcct	960
ctgcctcgtc	tttcttgccg	ctttcatcaa	agctccgac	tccttggcaa	tggcgttttg	1020
ctccgccaac	gagcatccag	actctgttga	gtttcgcgtc	gctgtctgtc	gagagagaga	1080
cttcgtcgag	aatagcagct	gcacgaagt	gcttcaccgc	caagcgagga	tcacttcttc	1140
cttgttttct	atgatttgct	tgagtgtcag	catagttatc	gaaaaaaaca	aaaggcaaat	1200
ccccaaggcg	gttacagcct	gtagaattcg	ccccggggat	c		1241

(2) INFORMATION FOR SEQ ID NO:695

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 645 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...645

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:695

ttagaaacga	agctgatgcc	ccatcgggct	gataaaanag	ttnggcantg	tcagaatcat	60
gtaggtcaat	nccatcaacc	aaggagaaac	tttcgtaact	cnaccctgc	attacgctct	120
tcgaaagtag	gcagtcctcat	tgaccgtag	ccatcacgac	gaaagcaagt	gcagcgataa	180
acataccgat	cacaatttct	taggggtgga	aggctccata	ttacgtttct	tcagaaaacc	240
gaagagaaga	gcagaagtgg	cgtaagagtt	actacgaaga	acgggttgat	tgacggaaca	300
tttcagctcc	cactattgaa	gtgaaaccaa	gatcgagttt	tacctactta	ggtcaatata	360
atccttagca	aactgagtca	gcgatactcc	gtttgggtgga	aagacatcca	gaagaaaata	420
acgacaccga	aaactgcgca	agagcaataa	tgcgttggcg	gatctcatcg	gctgccatct	480
tgatttcttg	ttttgatctt	tatgagcctc	agttacggca	ttagcttttt	gatcagcgga	540
tattgatgct	tattgatgat	ataaaatcag	gaaagaaatt	gccttaaaaa	tacggctgca	600
aggaaatgca	tagtggaatc	ctgggtgctga	ataccttgat	atatt		645

(2) INFORMATION FOR SEQ ID NO:696

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 416 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...416

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:696

ggctcttctc	gaacgtataa	ataccggccg	ctaccggcaa	atattgctag	cgggccttgc	60
ttcacggctt	tggcagacag	ctttcccggt	ggtgcaacgg	atattgctgac	aatgctgtgc	120
tcgaagagta	tttgaaagct	cattccatca	tgattccctc	atcttgctca	aaggatcgca	180
cggcatccac	ctcgaaagat	aattcctcta	tgttgaagca	aacccttgct	caaaggcagc	240
aacaaatctc	tctgtacaac	agatccagca	aatcaaactc	ttggagcttc	cggcattgag	300
ttagaagaga	ggatacagaa	agaactggag	gccaaccctg	cttggagaa	ggagcgtacg	360
atgaggaggt	ggccggcagt	gcggatggaa	ccaagacaat	cttatggggg	acgaca	416

(2) INFORMATION FOR SEQ ID NO:697

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 797 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...797

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:697

```
agcttgggta tcctgcaatt tctgaaatct gtgcatctat cacactgtct ccagcttttc      60
gaagagcaat tcgggattgc ccaanacgtg tccttcggta agagatccgt actacccaaa      120
cgatcccagc cgaaaaggaca gtcggtgaga gcatcgacat gagttttgcc gaggagaaaag      180
gcaggaacgg ttcgaagcga tagccagatt ggccgttatc tgcagagaca gattgaggat      240
cgtagcacac ggttcatatc cgtttttgcc agcttccaag gttccgtatc ggccgatatt      300
tattgcctat acgtgccaga ttcatcgctt ctttcagtgc ttccggaagt ggaacgtatc      360
caactgatgc tccaaggcct gcttcacggc tgaaactcct ctatcgtgcg gctgtcgcaa      420
tccgtcagct cgcttttggg cggacagctc catcgaagta tttatgagta aggaccaatg      480
cccggttcac aaattgccga atatggctac cagttcattg ttgttgcgag cctgaaagtg      540
cgccacgtga agtcgttgtc cttcgtctca ggagcgttgg ccgtgagcca tagcgcagta      600
catcctgctt gcccggaac tcttcgaggt attcatgagc cagacggncc agttccgact      660
ggtggaaatc ttatctcctt cgaggtgaga aactcgttgg caggcacatt gtcaggcagg      720
ataaacgaac cttcgcacgg agcatggccg ggaaaacgat ccagtggaat acgatattat      780
ccttccgata aatgaac                                     797
```

(2) INFORMATION FOR SEQ ID NO:698

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1398 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1398

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:698

```
aggaagagga gggcgaggaa taatccactc aagccctatt ccctctatct cttctcttct      60
taccgtaaac ctctctaagc ggagtacttt gacgctgaat ggcggtgtgt cataatgcgc      120
aaattgccgg gttgcttgcg acattcgctt cagtcacata ctttaatcag cctcagcacc      180
ttgtacttta ggcattttac gtacctaaaa gggggctgtg ccaagaatga attttgacat      240
agcccgtcag actctcgggg gacaatgcac ttcgcttgcc ttttttctta tccatcaact      300
tttttcacga tggcaaagcc tgtggtagaa acgcctttga tgcccaatac tttcagatca      360
agcaaaaaaca ccctgatgct atcctgctct tcgggtggga gatttctacg aaacattttc      420
ggaggatgcc atcgtggctt cgagatcctg gggataacgc tgacacggcg tgccaacgga      480
gctgccagtg tgtcgaattg gccggctttc ctcatcatgc gttggatacc tatctgccca      540
attggtacga gccggcaagc gcgtggccat atgcgaccaa ctggaagacc gaaaaagacc      600
aaaacgctgg tcaaacgcgg tattaccgaa ctggtcatcc cggcgtatcg accaacgaca      660
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atgtactctc	tcataaggag	aacaattcct	tgcagccgtc	tcctgaggca	aagaggctct	720
cggtatttct	cttctgacat	atccaccggc	gaatttatgg	ccggacaagg	caatgccgac	780
tatgggaaaa	actcctgacc	aactaccgcc	cgaaggaaat	cctcgtggaa	cggcggagcg	840
gtctcgcttc	aacgacctct	tccactggag	cggatttatc	ttgatatgga	agactgggct	900
ttctcctcgg	agaacaatcg	actacgcgta	ccaagcactt	tgacctgaaa	agcctcaaa	960
gtttcgggct	ggaagagctt	cgatggcagt	aacggcagcc	ggagccgtac	tgaactatct	1020
cgatctgacc	agcaccatca	gctacaacac	atcacatcgc	tgagccgact	ggatgaaacc	1080
ggatgtgacg	cttggataag	ttcaccgtcc	gaagccttga	attgcttgcc	cgatgaacga	1140
gggaggcaag	agtctgctcg	acatcatcga	ccatacataa	cgcctatggg	agcaaggcgt	1200
atacgacagt	ggatcgtatt	cccaccaagg	accctgcacg	catacaagcc	cgacagcgag	1260
tggtggagtt	tttctccgac	atcctgaaga	gcgagccatc	attgccgaac	atctgacaga	1320
gatggcgact	tggaacgttt	ggtgacgaaa	ggcgccatgg	gacgcatttc	tngcgagaaa	1380
tggtncacta	cgtgtcgc					1398

(2) INFORMATION FOR SEQ ID NO:699

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 686 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...686

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:699

cagggatcag	gaggaggagg	gctctaaccc	gaatacgatc	cggagaccat	agacaatcca	60
caagactaaa	caacgaaaagg	agtgcgtcga	tccgaaagtc	cggcgccactc	tttgtataga	120
ttcagatttg	actcataaac	aatcaatagc	ggacttcatt	ctcttaaaat	aagtatatct	180
gcaaaaataa	taagctatta	caagtaaaat	caactttatc	ttagggttaa	gctcaaggta	240
attgatatac	tctgggttag	gatgataact	atttagttaa	agaaaataag	aaaaacttat	300
tcacgcataa	acatggcaaa	aaaattcaaa	atagaacctt	ttacaaaagg	catatgacac	360
tacacgaagc	aatggagaaa	ttactcagag	agctggaaga	ggatgacaa	aagataaaat	420
cgcagaaaaa	ttaaataaaa	aaagtgggtat	cagaaagaag	actgttcaga	aattagccca	480
aatcaaat	agcgagagca	agcacatacc	cagagatcct	ccatcgcaaa	ggcggaaaaat	540
ttctctagtt	aatagaaata	gaacacaaca	atcctcatca	aaagaagttc	aaaagctcct	600
aaaaatacaa	agcagatcca	cagaaaaaat	ataccatagt	tgaaaaagag	ctgctagacc	660
aactaaaaat	taaacttgnc	aaagta				686

(2) INFORMATION FOR SEQ ID NO:700

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 369 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...369

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:700

```
gaaaaaattt tcgcgccacg tcttttccaa ccgtattccg gctttttctg aacgacaaaa    60
gagaaaagggt gtctatgtgc catcggtaac ttcggacagt ggcggatgcc tcatcgagta    120
ggccaaaaaat gcctaccttt ggggcagtggt aaaaacttaa tatcaatata taacaagagg    180
atacagcgat gaaattttta tcgacacagc taatttggat cagatttcgc aggcgaacga    240
catggtgtct tggacggcgt tactaccaat ccgtctctga tggcgaaaga gggtttagtg    300
ggaaagacaa ttgcatgagg cactacttgg ccatctgtga gatggtcgat ggagatgtga    360
gtgccgaag                                     369
```

(2) INFORMATION FOR SEQ ID NO:701

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1078 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1078

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:701

```
tggtttttca ggaattggat cgcttgccgg aaggattctc ctgtccggag ggcgcgagaa    60
accttgggga acgaatcacg ccgttctgat gggacgagtg cgattcgca accttttgcc    120
gtcatcaatg cggatgattt ctatggagca atggttttga agttctggct cgtaagctca    180
tgacttttga gggtaacaag gcgaatactg catggtcggc taccgtgtgg gtaataccct    240
gagcgaagcg gtggcgtttc gcgtggagta tgccaggtag atgaaaaaca tttgttaccg    300
gtgtggtgga gcgtaccggc atcgagcgca cagacggtac tattcattcc gagatgagac    360
cggaaagata tgtacgctgg cagaggatgc accgtttcga tgaatatgtg gggattcact    420
cctgactact tcgactattc gaagaactgt tcatcaactt cctgaatgct catgggcagg    480
agccgaagag gagttcttca ttcccttcgt tgtgaacgat cttattcgca gcggtcgagt    540
tcggtggaag tgctggatac gacagcccga tggttcgggtg tcacttatcg gacgatcgcc    600
ccggtgtcgt agccaaacta cgcgaaacta cggaagcgga gaatacccaa cgaaattggt    660
ttaatgccaa atatcacaaa caatgacaag acaatcaagt ttctttgcct tgcgccggca    720
gtaatcggcg catttgtctg accggctgca atggcaataa gggtcagact aacgatactg    780
acagaagcgc gaaccggtag cggccatgca cctcagtgcc atggatacat ccgacgcccg    840
caggacgact tttatcgcta ctgcaacggc aattggatga aaacaatcct ctcaaacctg    900
cttatagtgc ttacggctca ttcgacatcc tcacgacagc accctcgagc gtgtacacct    960
gattgtggac aaccttgcag aggacagcat gaagtcggca ctaatgagta tcgnatagct    1020
```

acgctctatg ncaagctatg gatagcatca aacggaataa agacggagca gccctttg

1078

(2) INFORMATION FOR SEQ ID NO:702

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 705 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...705

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:702

ggagaaactc	gctcgaatga	aaccgcaaaa	ccaatttaat	gcgtcggccc	gggggcaacc	60
tgtcagggcg	atcgcgttta	aaaattttta	gtctctttct	ctatgatttg	aatctctgac	120
atatgaattc	gcacttgttt	gataatcggt	gtagcaatca	tgagcttttag	atgcacgtta	180
gtggctgaaa	tgcgatgccc	tgatcaaaaa	tagtactacg	aaagttttgt	accttagcgc	240
gcatgaaaag	accaatctgt	ttttatctct	gctggtgatc	tttatcaccg	gtagtttatg	300
actgcctgtg	cacagaagtc	caagacgaac	aaactcaccg	aagagatcgg	agccgcaatg	360
agtatgtaca	gtcgatggat	gtgcttagca	atztatcggt	aacgtcaggc	tgtatttcgt	420
cgataccata	agtatcaaac	aatgactcgg	cgtgggtatag	atgcgatggt	gggcgggctt	480
gaccctata	cgaatacatt	ccttacgagg	aaatggatga	actgaaattg	atgactacgg	540
agagtatgcc	ggagtcggag	ctatcatatc	gcagcgcccg	gatagtgcgt	gattatccag	600
agacctatgg	aaggatatgcc	cgcagacgaa	gcaggatgat	agcaggcgac	cgcatacctga	660
ctatcgatgg	gaaagacttc	cgcaaaccac	cacaccgaaa	gtaag		705

(2) INFORMATION FOR SEQ ID NO:703

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 545 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...545

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:703

taggacacta	atgtttcaaa	atggcattgt	gggttgccagg	atctatagtg	gattttcata	60
atatgtacca	aaatcaagat	cttcagcact	ctccacaacc	cagggccacc	ctgaggcacc	120
atgtagatgc	tcactttctc	aattttgctt	ttcctgcccc	ctctcctaca	taatggtagt	180
cagggtttagc	ttgatctgtc	cgtcaccgcg	acgagcactt	cccataggca	tggaacaatgt	240
catagcatat	acgacttcgc	cgcattgtcc	ggatcggggc	cattgccctc	tttatacaag	300
aagcaaagcc	caatgagagc	aatgctccga	ccaaaaacat	ttttttaact	tcataagcca	360
aatgtttaaa	aggattaata	ttaaattgat	tcaaaaacgt	cgaaagaaag	actataaaac	420
acaaaacgct	caagactata	aaccggataa	acttaacgat	gaatcctcgt	tatcacatat	480
ccgaacccat	atctctacaa	ttctatactc	ttgcacacta	ttctgctgaa	cttcacctga	540
cagct						545

(2) INFORMATION FOR SEQ ID NO:704

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 365 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...365

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:704

ctagaggatc	ccccgatcat	cgccaacggt	gccggagctg	aaaacaaatc	atccaaaagg	60
ccgtgctcaa	cgggaaaacc	ttggataaaag	catggttcaa	catagcgaca	tagcccaagg	120
cggcattttg	gagctgaaga	tgggacccgc	cccaacaaac	tatgggggagt	cgatacgcct	180
cctccttctg	cagatcctat	ccgggcgact	gaccttccc	gactttccct	tgattgtgac	240
gtgtatgaga	aaagtcgtat	gttggttttg	gtgccgaaag	acggagaatt	accggcctaa	300
aatctcaaaa	actcgaacca	caaggaaaat	ctttacgcgc	gagttttttt	gcttttggt	360
cgagt						365

(2) INFORMATION FOR SEQ ID NO:705

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 302 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...302

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:705

```
ctgaaaagca ggagattaca tgttgaatgt aaatcggatg gcaactcctt ttcataaaag      60
aaattgtagc caccatagaa tactccgact tgcatacagg accgatactc tctgaataac      120
ccatctccag atagggtttt ctcgatacat atcccaccgg gctttgaaat gtaaggcctc      180
gtcgttggtc ttttaagaaac gaaaggcagg aaattgacca gcaggcgcgga agctcggtag      240
ctggttgaag gataagggtg ttggcggctg tagcccgata gggaggcagt gtctggaaag      300
ca                                           302
```

(2) INFORMATION FOR SEQ ID NO:706

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 464 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...464

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:706

```
ccgtaatggt agccaaaaca tcaccagcag caatactacc aatttgagt tagctttaat      60
ttcatagctc tgggctttcg ttgaaacat cgcacgtgta cagaacgctc caccgtaacc      120
ttggcctgat tcttaatccc tgcgatacat tggcctcgga tacagcagct tcgatagtca      180
aagcatcaga aggctgaaac aggtcatcat gattgtctca tcagtagtac cattcttttt      240
ggcaactttc cagccgccgt agcaggattt gggccatcgg ctaccgtacc taaacttgag      300
cctgagtaga cagttcgatt acctctttga atttagcatc aaatctgctg cattaacatt      360
tgccaaaagg gcttttgctt tgcctgcgat gtattgagca ccacatatac ttttaaccgtc      420
ttgccgactg cagaattaac ctgatgcctt ttttgggttt caaa                      464
```

(2) INFORMATION FOR SEQ ID NO:707

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 480 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...480

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:707

```
tggatccccg ctcccaaadc cagcgacaaa aattatattat cagcagatta tagtcaattg      60
acggaattgc ataatagaag agccggcttt caagaagagt gaggaatata tataaaaagg      120
catatgataa gtattgtgca gagtagttta ttgcattttt tctgaatctg gacttatcgc      180
ttaggtttat aggtatcagc agttttctac aacaatcttg caatctcacc ttttgtcttt      240
ttcctctggg aaaaacgaaa gtatctgttc agctatcgga gatggcggaa tcagcactca      300
acctctgttc tctgtatgga gccgttgcaa aacgaggaac agttgttgtc ggccgggatcc      360
tctgaaggat tgtaaatacc ggtcccgggt gatctctcaa aactactagt agatccttcc      420
aaaaccacta gtggattttc taaaaccact agtagatttt ctcgaaacta ctagtagatt      480
```

(2) INFORMATION FOR SEQ ID NO:708

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 928 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...928

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:708

```
ctttcttctg atttgtggtt cgacttttcc tgatggatcg aacgcttctc ttcgtaggggt      60
ccggggccat gcagagaaaa tggtagataa ctaacggact ttagcgacta taaaagtgtt      120
tagaaagctg tttttgatgc gtcaacctgc aacaggcctc tgatcatctat ttggagcaaa      180
ttcataccct ttcgattcag tcggaaaagc aaaacgggaa aaaccgaaaa aaagaatcac      240
ttcgacgata gctttttcat gctctgacaa gtaaaaaaaa cttgcatgga gaaatatcct      300
tttgcgacat tttgtttgcc gcagagcagg caaacaggaa taatctcggg gtgccatcct      360
tttgatgttg aaatgcgatt tgcgaagaag cctcgccgca ttctttctct cgccggacagg      420
catggaatcc aaatatattt ggccggaatgt cttgtgaatg aaaaaaatat cggaactttg      480
cggccgttgc attggtcttt atcacctgaa aattatttga tagggctcgt cgatttctgt      540
aaaatccacc ttatcaaact cagtatgcta tgacggaaaa aactaccgaa aaacgctgaa      600
agatgttgta gtccgattct gcggcgactc cggagatgga tgcagctgac cggaacgata      660
ttctccgacc tttcggcggt gtttggaaac ccatttccac tttcccggaac tatccggcag      720
aaattcgtgc tccacaggga cattgggcgg agtatccgga tttcaagtgc acatcggaac      780
ncgactggta cgtactcccg gcgatttggc tgacgttctc gtagccatga acctgccgtc      840
tcaaagttaa ccggacacac gtaagacggg actncattat tatantcgac tctgactctt      900
tatggcatct gatttggaga aagcagaa
```

(2) INFORMATION FOR SEQ ID NO:709

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 236 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...236

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:709

```
ccctctttaa aactcgttgg aatgccctcg actctagagg atccccccgc tttcccttga      60
ttgtgacgtg tactgagaaa agtcgtatgt tgtttttggt ccgaaagacg gagaattacc      120
gagcctaaaa tctcaaaaac tcgaacccaa ggaaaatctt tacgcgcgag atttttttgc      180
ttttggctcg agtttttttt tttctcgaac catctttttt cgatccgcaa ttgtgc        236
```

(2) INFORMATION FOR SEQ ID NO:710

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 285 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...285

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:710

```
ccagctattc tgtgcatcgg gccaaaccgag atgatccctt tttgatctgt atctgcggag      60
gtccggcttt aacggtttagc catgttcggc atttcgcgat agccatgcag caggtagacc      120
acggggcaat ctccgccctc gctcgccagg ctatatccgg aagcactacg agtacaggga      180
tctccttatt catcgagcgc ttggcaccga cagtctttcc actccggcag caaatccctg      240
aacgacgata ccgatagcag tatgatgatc tgtagtattc tcttc        285
```

(2) INFORMATION FOR SEQ ID NO:711

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 798 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...798

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:711

caaaacgcca	ttgccnatag	taccacctnc	atattcgntt	gctgtcatgc	tgtccaaaca	60
ttnggggcat	cttcacacctt	tcccgttaca	ataaaatcca	atgcgagaca	tcgaagtcac	120
aaggcaccaa	agaccccaaa	gaccctactt	ttggtaagta	gcaccaccgt	ctttggaacc	180
gatacagcct	gacatctcaa	aataaatacg	agagaaaatcc	aacatcacat	agatccatcc	240
attgttgcca	cagccatctt	gtaataaaaa	tcctctgaat	atcctgatag	ggtgacatcg	300
tctcgatcaa	tacatcgctt	ccaccaatat	ccatctgggc	cttgccagag	ggctaaataa	360
aactatggca	aaagtcgcca	gcagcagtct	gatgcaattt	ttaatttcac	aattcttggc	420
atTTTTtatga	gtgaaacatt	tttgttcata	tcaccaaata	acttacctgg	cataaacgag	480
cgactcacaa	aatcgggctcg	ggaacggcta	ctccagcttc	gtgagcagcg	tactgcctag	540
agcttgccct	tcttgctgta	gctctcactc	ttgacgcac	cgacatcctg	gacatccatt	600
ccacggcact	catctgtacc	gtaatcatac	tttccatacg	atcgaatagc	tgatcttgta	660
gcattcgaaa	gtcccggccg	gagtgggaatc	ctctcgatgc	cctgcacctt	gcgtccgatg	720
gttcgcagag	taatcggggc	aacgggaaat	cggccgcttc	ggccgtaatc	gtcacttctg	780
catcggcagg	gactgacc					798

(2) INFORMATION FOR SEQ ID NO:712

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 826 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...826

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:712

gaatttaatg	tgctatatca	tgggctaggc	ggcaatctgt	ttctcctgct	agcctccgac	60
acctgtacca	tcgtgaagat	gtcgtttcga	tcgacagctt	attcaggctt	gcttacgtga	120
gtcacttgca	gaatatccaa	aagtcgacat	gatcggcaaa	gacttgcttc	atcatcggtt	180
gaggcacgaa	tggtgcagtt	cctccggctt	atctcgtctc	ggaatacgca	naaggactcc	240
atccaataag	gctccaagcc	gaacagtccg	atatagccgg	tdgatggggc	aaggtagcat	300

aataataatc	ggggtagcca	tccaaatcat	aatagcgaga	ataggcatgc	ctttcgtctc	360
cagcaaatec	gctttgtcct	catagcccat	cggcggaaca	tggccgccac	ctcttcggtg	420
cgctcacaat	gtgctcggaa	agtatgtctg	cgactataag	cgactccatt	cgctccttga	480
tccgcacgat	tctccgggtg	tgatcatatg	agcattcttg	atctgacaat	agtaaccgtg	540
gacaatgaat	gttcgatgaa	aagtttgctc	ccgggcaata	tgtctgcaca	gccttgctta	600
atatgaagct	gagcggtcgg	acgtaagttc	gcataccgat	tcgtccgaaa	aagaagcgaa	660
caggacatcg	gatggctcat	ataatcgaaa	ccaagatctc	gtgtacaatg	attgacttgt	720
gcattgaaag	gacgaagccc	aaatcgcttt	gaaagtactc	tgccactcgc	tctaaagata	780
tgcctgtgga	aactcttcgt	agcgatcgag	attgtcacag	tagatg		826

(2) INFORMATION FOR SEQ ID NO:713

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 366 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...366
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:713

ggcggctgta	acgggcaaaa	gctccccggt	aatacgacca	atagtcggcg	ggatataaccg	60
accgacgagc	atatagctgc	cacngacggg	gtgcgnatgc	gcaacccatt	gatcgtcccc	120
acggcaccgt	tggcggctcc	ggcaaategc	cgaacagctc	ggttcgcgcc	tgaccgaaga	180
gataggagta	gtcggcgaga	caaggagaaa	acgctccaga	tcggtcagag	aggcaatacc	240
ctgtggccga	ccgctcgcaa	caggcgcaat	ccgtcccagt	gcagatgcag	gagatgaaaa	300
gtcaagacng	agtcgatcgt	ccgtatagca	gacggaagtg	cctcgggtgg	catcgtggca	360
tcgttt						366

(2) INFORMATION FOR SEQ ID NO:714

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 522 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature

(B) LOCATION 1...522

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:714

agaggatccc	ctcctctcca	ctcctgcaaa	tctataaggc	acccgctcgt	tcggccacga	60
atcgagcggg	tgtctctttt	atatcagctc	tccaaacacc	ttttctgttc	tactatttat	120
atacaaatcg	aatacgatct	atatacaatg	gaaaatgatt	tatatataaa	tcgaaaacga	180
tctgtatata	aattgaactg	attaatatat	acatcgccat	cgaaactctt	tcaaagcaga	240
cctcactccc	aaaagtccga	ttcatgaaca	tttttacctt	gaaaacctct	tccttcaatc	300
gcttatttag	aatgattcca	aactcttctt	cgttgttgaa	aactttctgg	tctgtatttt	360
cgtgaaatat	tttcagatgg	gatgggtgatt	gttccggcat	tatcgaatca	aaaaaacgaa	420
gtactgcttc	cggactacat	aagctaacag	actgcaaatg	tcgaagatca	gactgtaggg	480
attccgctct	aatcgggtaa	aaagctttgc	ttcagtgagt	aa		522

(2) INFORMATION FOR SEQ ID NO:715

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 635 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...635

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:715

ccgtacggcc	tactgatca	ggaaggcttc	tcctttcgga	ttgtacagac	ttgtgggatg	60
aaattggaca	aactccatgt	cgcgcacctc	acagccggaa	gatagcagag	ggcaatccca	120
tctccgaggg	taccctgcgg	attggtagtc	ttcggtagat	ggcagccgat	cccccggtgg	180
ccatcacctg	atgcttccat	agaaaacgac	ttcacgcccc	tgcccccaat	cccatgtacg	240
tacgcacggc	aaccgaggtc	gtctatcagc	aattcgaccg	cttggtgatt	gacaatatct	300
ctattgcaga	agtttgcagc	acgtatcga	tcataaagct	cgtagcatcc	taccggtaga	360
atcacccctt	gcatgcagaa	tccgcttggt	gtgtgtccgc	cttcaagccc	cagagccaat	420
aggccatcag	cttccgtatc	gaacgcatcc	cccaacggat	caactcatcg	atccgctccg	480
gagcctcttc	gcaagtaccc	ttacggcttc	atcctcacia	aggccccgac	ctgcttcgac	540
gtatcgttat	agtgggttgt	cccggtgcat	cgtcagcagc	aggtaaccct	gcgactcccc	600
ttgtgcaaag	tacgaattgc	tctcatggga	tgtca			635

(2) INFORMATION FOR SEQ ID NO:716

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 854 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...854

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:716

```
ccattgaaag gcaatccgag atttttgagt gtaaagtcgg gcaatactcg ttgtgtgcca      60
tatccagcgt ataggtagaa gtttgattat ggcccactcg aataaggggt gcgtatactc      120
tgtcgggtgtt tttactgaca cgcttccatc tttttccatt catccttttg gttgttgatg      180
gaaaatctat accacatgta tagtcgcctt ccgagagagt gagaacgtct ttagaccaaa      240
ccaccgatag ttgctgctac cgcccgaac ttcagccatt acccagccca aagaattaca      300
tcgtccgcag tagctcctgt agatagagca aaggctacgg gtgacggatc tcatcagggc      360
tgctgctatt gaactgtact gtaatcgtag tagttcataa gaattcagat ctgcgacaaa      420
gctgttgggg acgatactga gttgccttcg ttattatcta ccgtgactac gacattgttc      480
gggtctgtcg atttacttta atgctattga catatcctcc ctgtgcatgc cgtaccggcc      540
ccactgttcg gtgcctgtgc gacgataaag taggggtgatg gtgttgatcc ttgtgacaac      600
tgattaggtg ccaatgagaa actctcggga tgctctcgta tccgtaccaa gagatattga      660
tagatgaaag ttttcacctc tatgactctc cgtcagcctt ggttcaatct gtatccgagg      720
tcaagatttg attgccttca cctgtattat atatcgaaata ccctacgttc aatccggatt      780
cactttatac tcggcttcta tgctttcagt gccaaagatcg gcaaggcatc tgtccggctt      840
cagcgggagt ctag                                         854
```

(2) INFORMATION FOR SEQ ID NO:717

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 516 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...516

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:717

```
ctgtcgggta tggcttgcca ccgattgttt gttttgtgcg acgaggcagg gcaacgctgc      60
atgccgagcg aattgctgca atcagagcac taacggcccg gatgattggg atttgctctc      120
cggaggggaa acgatcaaac agtggggaac tgccctgcccc tatggcgatg gctgagcgaa      180
agagggtgctt cgcgcctctc ctattattga atataggagg cggtacgatt acggacttgg      240
gcggctcgtc gcttcgggtc ataagcgagg tatccggacg gtaaattctca gcacacccta      300
atgggaatgg tagatgcttc ggtcggaggg aaaacaggca tagcttcgaa ggcgtaaaaa      360
acgagatagg cactttccat ctgccgaaag cgtcttctgt gactgtgctt tcctgtccac      420
cctaaccgac cgtgaactgc ttcgggacat gccgaattgg taaagcacgc tcttctcatg      480
ggagcggatg atggaaagaa gttatttctt tcgatac                                         516
```

(2) INFORMATION FOR SEQ ID NO:718

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 415 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...415

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:718

ggcgatgcc	atatcagcaa	gcagattcgc	tacaaaagcc	gtatcaacat	ttgaagaaag	60
aactacggga	ggtaaaggaa	cgttatcatc	aggatagttg	cgactggaag	aaatccgggc	120
gaacaaacag	gggaatagag	catacggcag	agagttgtat	ctgatgaagc	gacccgaaga	180
gatcattttt	ctgatcagga	tagcgtccaa	gacaaacaat	aacgaaaata	ggggcagcag	240
ggatgaccca	cagcagattc	gtgagataag	ctaccgtgtc	ggcagtctcc	ttttatcttc	300
ggagcagcat	cccagattgg	tacgctttgt	tgcccggana	ttactcctac	gcattggggg	360
cggctactcct	atctgctttc	ctatgccctg	accctgttt	gcggatttgg	atact	415

(2) INFORMATION FOR SEQ ID NO:719

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 808 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...808

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:719

acaccacccg	tttgttgatc	nattcgaagc	gattcagcat	ccgtaccata	cgctgggtggg	60
tgccacgcct	cgcttttatcc	gtaagccttt	cgttcgctca	gtatgctcaa	tggactcgtg	120
gcagcttttg	tcgccatact	actcctcgta	tagccctcta	tgcaactgat	gaatacgc	180
tcaacaggag	tttacgccct	tcttaacgat	ggaaaacctc	ctgacccatg	ccgaaggcat	240
gttactgtag	gtatactgat	ctctgccttt	tcggcacgtg	ctggaacgaa	caaaatatcc	300
gcatggatgg	aggcaaaatg	cacctcgtat	aaggcaagga	atatgacaaa	ccaactaaga	360

caatcaaaca	gcatactatg	cttttcggga	aaagaacttt	atcttgatgg	gggtgtccgc	420
tatcctcatc	attctgggct	tatattgatg	tcagggggag	gatcagccga	ccaagtaagc	480
ttcaatccgg	tattttcagt	gccaaacgca	tacagatagc	accgtgggtg	agcatggccg	540
cttcgtactg	atgggtatatg	ccatcatggg	atcgccggat	aaaaaagaaa	tcgcaagtaa	600
ctctccggcg	aggggtccttc	tgccgatcag	accgcaacgc	acgttggtggg	ggagtaattc	660
tatgcctgat	ccgagaagga	tgtaccctct	tcctgcatga	taatatgacc	attctacaag	720
ctcatcgttt	agccaagtcg	aaggctgacc	gagttcttcc	ggttcttcaa	cggacacatg	780
atatgccgaa	gcataatggg	gtggaaag				808

(2) INFORMATION FOR SEQ ID NO:720

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 696 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...696

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:720

tgccacagca	aagttcgtcg	ttatactgat	agaggggata	ttggcactgt	ggtagccgct	60
gttgtaaacc	aaatagccta	tacgatagag	gtactcctta	ccccgctgtc	ttggaagcat	120
cgtactatgc	gccttatatc	tggcagaatc	agcaggctat	gggtgggttt	catccggatt	180
cttggatctc	tactggcggg	ggccgtcatt	ctgttcaatg	tactgtcagc	aggtattttac	240
ttcgcgttag	tgtccgaaaa	ctcaccatgg	ctaccgtggc	tttcctcctg	actagggagg	300
tgaaacgatt	ttgttcggca	tactgacatc	caatctgaac	ctgacggaga	agatcctttc	360
actgctcttt	tcttcggcag	tatcggttg	tgctattcgt	tttatccttt	atcaaccttc	420
aaagacgaca	actgaaatga	cgtatactt	caagcacaat	ccatattcct	ccaaatatcg	480
gacacgatca	ggacaggatt	ctctccggcg	aatattcggc	cgacgaaagg	gtaccatctt	540
ccgcgaattg	gccgaacaga	tgggagggtca	atcctaacac	agcgatgcag	ctgtcgaacg	600
cttgcaaattg	gaaggtatga	tctataacaa	gcgcggatcg	gctactttgt	cagccccaac	660
gctcgcgaag	agatccttgc	ctctcgcgca	agaatt			696

(2) INFORMATION FOR SEQ ID NO:721

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 489 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...489

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:721

```
acgctgattt tggttgtcgc tctgctttat gccaaagagca aattgggtgct tccggcaatg      60
tgacgatcac cgtgaacgac gaacgcaaga tggaaagtact cttggcggtta ccttgttgaa      120
tacgcttcaa aatcagggag tattccttct tcggcttgcg gcggtggcgg aagctgcggt      180
cagtgtcggt gccgtgagtg gaaggaggtg gcgaaatcct tccgacggag aagggatttt      240
tctctgcaaa gaacaaaagg atcattggcg actttcatgt cagacaaaag taaagaggat      300
cttagcatcg ttattcccga agaggtattc ggtgtgaaag aatggagtggt gaagttctct      360
ccaataagaa tgtctccact ttcatacaag aattgtgggt aagctgcccg aaggcgagac      420
tatgaacttc aagagcggtg gtatgcccgag atcaagatac cgaatacaac atccgctatt      480
gccgaacta
```

(2) INFORMATION FOR SEQ ID NO:722

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 413 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...413

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:722

```
ggatctcctc ggcggataaa atctttccgg tagccgaaga atcggctgcg attcagtctc      60
tacttccgac gtagcgatcg aggaagagtc caccggcaga atacggaccg gcgaatggag      120
gtatcctggt tttgtgcttg caatgacgca acgagccgat cgacagaaaa aggatcaggg      180
gtaaaaccgc aatatgcgta gtacaggcgt tctcatcttt tcaaggtttt agtgctgtca      240
atctgtcgat tatgttgcaa acacgttcgt acacggagtc catcgccgca tgctattgct      300
ctcaggagca tatcgggcaa aatttcgcaa ggtctcgatc agtgcataaa gctcccttcg      360
ataagaagtt ttcaggcacc atgaaccggg ctgaagcaaa gttcgttccg ggc          413
```

(2) INFORMATION FOR SEQ ID NO:723

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 825 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...825

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:723

aatacgtatc	tgctcacgat	ggtcagggtat	gtccggccaa	gtggcgtgag	gtcagcagac	60
actgaaaccg	agcattgatc	tcgttggttaa	gatctaagag	taaaccgagg	agagaggggtg	120
tgtcggaatc	gcaaaatgag	gcgatcaaac	acaccctctt	tctttaaggc	acgaaagagt	180
tctccatgct	gtttctcgaa	tacagtgaga	taatcggaac	tcttgattaa	ggtccttttt	240
aatcatatcc	taacgactat	gcttgataaa	gatactcttg	cccaagtggg	ttctactttg	300
cccaactgaa	aaagtcctat	acattacgac	tcaatgctca	tactctcatc	cttcctacaa	360
cgaggcgaag	gaaatgctcg	atgggcttgc	atcgtttcgg	atcatgttcg	tgcggaatac	420
aatgcggcag	atgattttcg	ttcgatctgc	tcgtagacgg	agcggatagc	gggatcggct	480
tccgtggtat	ccgggtggcc	atgaatttag	ctcactgctt	cttgctattc	tcaacaatgc	540
ggtatcggaa	ggaatatccc	cgatgaagga	gtacaggata	gaatccgcgt	atcaatgggc	600
cgatagagct	gaaaacctat	gtatccctct	cttgtncaat	tgtcccgatg	tggtgcagac	660
cctcaatatg	attgccattc	tcaatcgact	atcaatcaca	ccatggtcga	tggttctttc	720
ttcccggacg	aaagtgagtc	gttgggcatac	gcttcctgtc	cgacngttat	ggccggagat	780
gaaggatcca	tgtggggccg	tggcgatatg	gctgccttgc	tgaac		825

(2) INFORMATION FOR SEQ ID NO:724

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 672 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...672

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:724

cgtattgggc	gatctggctt	tgatcgga	atatattcgc	ggacgcattt	tgccacctgt	60
ccgggggcaca	gcatcaaca	caagatggcg	cgcctgatcg	caaagaaatc	aaacagaacg	120
aagcacaggc	ccctgtctac	aatccgaca	agagccgatc	atggacatca	atcggatcaa	180
agagcttcta	ccccacgcta	tccgttccta	ttggtcgata	agatcatcga	agtagggccg	240
gactaatagt	cggagtaaag	agcgtttccg	gcaacgaacc	atTTTTcccc	ggtccttccc	300
tggtgagcct	gtgatgccgg	gagtcctgca	agtagaggca	atgcgcaggt	gggaggggctc	360
ttgggtactca	ataccctgac	cgagccttcg	agtactccac	atacttctct	atgatcgaca	420
aagtgaaatt	ccgccgtaaa	gggtaccggg	cgacactttg	gtgttcaagc	tcagaatgat	480
ttccgagata	gcagaggagt	cgctaatatg	cgcggccttag	cttttcgtagg	agagcagttg	540
cctgtgaagc	tgaatttatg	gcacagataa	tccagaataa	agaatgattc	agagacaaaa	600
atcagtcctg	tggcatgggt	ggatccgcac	gccgaagtag	gaagtaggtg	ttgagatagg	660

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...826

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:224

cagggtattg	accagctctt	cggtgacatc	gaagggaagg	ttgatggttc	gctgatggag	60
tggtctaccc	actgctggat	gcgtccctgc	atcttcactt	ggctaccag	tccacatcgt	120
tggccgtggc	cttgtagtag	ggcgaacggc	cacgaggtcg	tcgatctctt	cgttcgtgta	180
tttgcggtcg	gggtcgaacc	gttggtgcgc	atccaagtga	cgaagtgtg	gtggtagaca	240
acgaatcttc	gaagctgtcg	cccacttcgt	ccacatagtc	gatctgtacg	ttctgtcgct	300
cggattcacc	tttctgcgac	gcttgtagac	cggcatgaat	accgctcgat	accggaggaa	360
gtctgcgtca	tcagactggg	ggaaccggta	gggctatggg	aaggcaggcg	atattgcgtc	420
gtccgtactg	cttcatctct	tgtacagcca	tgggtcggct	tcgcgtatac	gggctataaa	480
gggattgttc	cttcgcgttt	ggcatcgaac	agttcgaagg	cggcgcgctc	cttgcccatg	540
tcacagagct	gctataggcg	cagagtgcga	gggtcttctg	tacctcttgg	cgaattgggt	600
agcttcgtcc	gaaccgtagc	ggaatcccat	cgtgcagca	tatcgccctc	ggcgggtgata	660
cctacgcctg	tacgacgacc	ggcaaggctc	tgcacggatc	ttgtgccaga	ggttacgctc	720
cgaggctctt	acttctcgct	tcgggatcgc	tggctatctt	gcttaggatc	tgttcgatct	780
tttcgcttcg	aggtcgatga	tgtcgtccat	gatgcgctgt	gccaaa		826

(2) INFORMATION FOR SEQ ID NO:225

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1277 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1277

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:225

cgggcaacgg	ctttgcagct	aaaaccttcg	gtctgcctgt	gctcacgcac	gggctgaagt	60
ggaagaaatg	ccttctccgt	ccaagcaact	ggctgcctcg	gcatgttcgg	tacgatggac	120
gaaccgcca	tacaatacat	tgtccggcg	acgttcttca	attgggagag	agtatcatca	180
aggtgctttt	cgtcccgggc	actcgcccg	tcattctggc	ttctattgcc	cgcaggccca	240
agctgattta	cggcgatgc	gctctttgct	ggcgatatgg	gccggaccga	cttaggggcg	300
gcagctacga	actcctgaaa	aagagcattc	gtacggaact	tctcccttc	ccgacgatac	360
ggtagtctac	cccggacacg	ggcctacttc	tagatagctt	acgaacgaac	taataaccct	420
tttctcgatt	agaataatga	aactaacaaa	ttcgaaaacc	gccatattgg	tattgccgag	480
cgcgacctct	cgtcatgctc	cggaccatag	gcgtagagtc	aatggatcag	ctgatccgca	540
aacgatcccc	ggcgacattc	tgctgcccga	gcctctcgat	ttgcccggag	catgaccgag	600
cgcgaactgc	tcgaacattt	catggaactg	ggatccagaa	caagatcttc	acctcctaca	660
tcggacaagg	ctggtatgat	acggtcggcc	ggctcccatc	cagcgcaacg	tattggagaa	720
tcctgcgtgg	tacactccta	tacgccttat	caggcggaag	tatcacaggg	gcgtctggag	780
gtccttcaa	tttccagacg	gtgatcccg	aactgacggg	gctgcccttg	acgactgctc	840
gtcctcgac	gaagccactg	ccggtgccga	agctgcacgt	atttcttcga	tacctgttcg	900
cgcacacaaa	tcaaggctgg	tgccaacggt	ccttcgtgga	chagaaggta	ttccgctcta	960

cgatcgaagt	gatccgcacc	gtatcatacc	tcagggtatg	cagatcgtgg	tggatgacta	1020
caagacatta	gcttcacacc	cgaagtat	gctgccatcg	tacagttccc	cgatgcagag	1080
gatctgtcaa	tgattataaa	tcattcatcg	aagcgggtca	tgctgccatg	ccaaagtagc	1140
cgtagtagcc	gacctcttga	gtatgacctc	cctgaccctc	cgggagaatg	gggggccgat	1200
atccgtat	cggatcggca	caagcttttc	ggtattccca	tgtattacgg	cgggcccgtc	1260
agcaggatat	ttggtta					1277

(2) INFORMATION FOR SEQ ID NO:226

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 493 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...493

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:226

cattacagca	agcatttcac	gttcataacc	tttgagccac	cctctgagat	gtccggtata	60
cgggccgcat	cgaagtggcc	cttgaaagca	tatccgatac	ctccgggaac	cgatcatccg	120
ctgcgacgag	gagaaatccg	tctttcttcc	tcgattgaaa	acgaagaata	gtgcctcctc	180
tctttctgca	gctttgaaac	gaaatccatc	cggagactcg	ctgtcgatga	agacagcggtg	240
ggttgcggtt	ggcaaaaaag	ttcttagccg	tctgttcggc	tttgatcggt	gtcacgggtcc	300
tgcctggagc	ataggagagc	acagtaataa	tagccctaag	gtgagaagat	acgtttcatt	360
attgcatttt	gttttggtgt	tcgaagcagg	agggcagaag	aagcgataat	cccgtcatcc	420
tctttaagcc	gcactaagat	aaaaagagca	ttattaagag	tttgcagaaa	gaaaaaaagg	480
gatacttgcg	atc					493

(2) INFORMATION FOR SEQ ID NO:227

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1983 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1983

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:227

tgtcggtcag	agaatcgaat	cgaagaagac	tttcgtctac	cagatatgga	ttgtgatatg	60
gtatccatcc	gcgtgagtcg	tattgaactc	ttcgcttatg	tcatggcatt	gggattgcgt	120
gccccatgagc	gtcggggccac	tccgccctta	catcccaaag	catggccgag	cgcaagatgg	180
catccacacg	ttccgaccat	cgagcaccat	gccgaatccg	ccgttgatag	acttcccgat	240
acctaaccgc	cgccgttggtg	cagagccaca	aggctcattc	cgcgagcagc	gttgcggcaa	300
aacactgcac	ggccatatcg	gccatcacat	tgctaccgtc	cttatattgg	aggtctcgcg	360
gaaaggactg	tccgtaccgc	tcacatcgtg	atgtcacgtc	cgagcatgat	agggccaacc	420
tcgccacggc	gtaccatttc	atgaagcgca	gtgctatggt	cattcgctccg	agtgcattcct	480
gatagaggat	cgtgcctgtg	tacctacgac	gagctgattc	ttctcagcat	cgcgtatccg	540
atccagttgt	cgcgggtcttg	gtcgcgtctg	tccggatcga	tgcatctctg	gctgcattggt	600
cggctcttgac	aagatcctca	tgcttaccgc	taggcattcc	agcgggaagg	gccatagccg	660
tagtcgaaca	gctcggggcc	catgattctt	cacgtagctc	ggccagataa	atccgtccta	720
tcgtcgattc	tgtctgctga	tctcgataat	accgtatcga	tatgctcttc	atgaaagcat	780
tgcctagtcg	aagaagtaag	atccgcgtgc	taccagagct	ttcaccactt	cgaatgacgt	840
ttaagtccga	gatcgacctg	acggcagaat	tcgtcgcgat	ccctttgagc	aggcgtgtac	900
gctcctcgaa	agagagtgtc	accggacagt	accgccttca	tatacggcat	ggcaactggt	960
ctgatcggaa	aggagatcga	atgaatacct	tcgctcaaag	catattcgag	caggtctact	1020
acattgccag	ataggcaata	gaacaagggt	cgcccttctt	ccgggcatcg	gcagccatcg	1080
gaaagcctct	tctttcgact	cggtagggaa	cttgacccat	ccctgtcgtg	acgggtatcg	1140
atacggctac	tgtccacttc	ggccgttatg	ctgacgtccc	tgcaatatcg	gcagccttgg	1200
gctgtgcacc	gctcataccg	ccgagccgct	ggtgacgaat	agtttgccgg	ccaaattgcc	1260
tcccgtgggg	atatcaattt	ctgacgaccg	gcattgagca	gggtattgaa	cgtaccgtgt	1320
acgtaccttg	cggcccgata	tacatccagc	caccggcagt	catctgtcca	tattggccac	1380
acccatctgg	gcagcgatct	nccaatcctt	gatatggcat	aaagccgacc	atcatggaag	1440
ttgggtgatga	tcacgcgcgg	agcatcaggc	tggacttgaa	gagtcccaaa	ggatgaccgc	1500
tttcgatcac	gagtgtctgt	cgttggtcat	ctctcggagg	tacttcatga	tgagacggta	1560
ctgcatccgt	tctggcatac	ctgcccggtc	tctccgtaag	taacgagttc	gtagggaaga	1620
gggcgatgtc	gaaacagaga	ttattgtcga	tcatcacctg	aaaggctttc	cttctataca	1680
ccggcccttcg	tactcgtcga	tgcttttggc	tttgaatccc	cttcgggacg	gaagcgatag	1740
ccatagatct	ttccacgggt	tctcgtctct	cgaggaattc	gggagcaaa	ctccttatgc	1800
aatctcacgg	ggaataacgc	aatgcattct	tcaaggccgt	gcgtgtctgt	gaaggggtaa	1860
gaggaagccg	cggtcaggag	cgcggcgaat	acctgtaca	aacttgggat	agcaggcagc	1920
gtatttgtcc	agagtgaact	tcattatttg	atattttgtg	atttgtagtc	aagtaccaag	1980
cct						1983

(2) INFORMATION FOR SEQ ID NO:228

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 687 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...687

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:228

ggatatcttc	cgtgggtacgc	tggacgggtct	gacggaagaa	aaccgcctgg	attcaacagg	60
cggatgtgcg	gaggcaaatc	gctgaaacac	ctgttagagc	actggcagcg	cgggaaaccg	120
acgaaattaa	agcagagttg	ggacgcgcta	cgaggaagag	gagaagaggc	tgaaaagcga	180
tgatcctcac	cctgtcctcc	gcttagctgg	gataaagctc	tgataggagc	aaaggatcgg	240
atcatccggc	taagaatcaa	caggcttttt	ggcagatgcg	aggctgtcgg	aacaagagac	300
cgtagcggaa	ggcgatcact	atttgtttaa	ccgtttcacc	gaagggagca	gctttggagt	360
tgagagaggt	agacagcgaa	ctggtcacat	aaggtttact	tcggctttgc	cctactacga	420
gaagtatgcc	gtggcgcgac	acgtataggg	gagcggctgg	ccgatcttct	aacggctacg	480
gggcgtcacc	tttcgaacat	gtgctggaat	acggctgcgg	ctgcgggtgtc	tatacgcgca	540
actggctcaa	accgttacgg	taaagcagtg	gacgctcaat	gatttatgcc	ggtctgcgag	600
gagtatatac	gcgtaagctc	tgtttctttc	tatgcagcga	agccgagaca	atgccccaca	660
cggataactta	cgatctgatc	acctcgc				687

(2) INFORMATION FOR SEQ ID NO:229

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1100 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1100

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:229

acgaaggaac	tggtgaagtt	gatacctgcga	aagaaaggct	tcggcgggctc	gcttgtctgc	60
tcgatgtcgg	cacggcaagc	ggatgtcttg	ccatcacatg	gcacgagaac	ttcgagccaa	120
agtatgggcg	atggatat	cacccgagct	ttagctacgg	ctcgtaccaa	tgctggagaa	180
gacgaccgga	tattttcttc	gagggcgata	ttctttctcc	cgataatcgt	tgggacgtac	240
tccccccgtg	gacattatcg	tcagcaatcc	tccgtacatc	atgcctgcgg	aaaggccgat	300
atggcgatc	atgtgctggg	acatgaaccg	gccttggtc	tcctgcgcc	gaggaggatc	360
ctctcctttt	ctacaaagcc	attgccaaac	ttccggcagc	ggtaaactac	gctccggcgg	420
acggccttat	gtggagctga	accgctgctg	gccgaagcca	catgcgaagt	attttcggcc	480
aaagtgggat	gtgtgaagtc	cgattgcaca	cggacctctc	cggcaagagc	cgttttctcc	540
ggcaaaatat	ttaccgcgta	acaaagcatg	aagacagagg	aggaactatg	aatcggatgc	600
aagcctactg	cgcccgtacg	gaacattgca	gatcagagtg	gcagccaaac	tgcgacaggc	660
agggacagac	gagctaata	tagagcgctg	ctgcagcggc	ttgtggaaga	tcggttcatt	720
gatgaggatc	gttttcccgt	gcttatgctc	gtgacaaata	ccgattcaat	ggctggggtc	780
ccaacgcatac	gcttttggaa	tggtcaaacg	gcataattccg	gattcgatca	tcgttcgacc	840
ttattggatt	tggaggaggg	agaagataag	atagaggata	actgccgcgt	ctcttgagc	900
gcaaacttcg	aagcataaag	gatacggacg	acgcggctcg	ctgcaccgct	tggtgcgctg	960
ggctgtggga	cgaggattcg	atacgaacag	gtgatgaggg	aggcatcacg	cctcctccgc	1020
aaagggtata	ggaagacagc	taacggtacg	ggccggcata	tccgattgct	gattcgtagg	1080
tgttggaatc	gttttccctc					1100

(2) INFORMATION FOR SEQ ID NO:230

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1223 base pairs

(B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1223

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:230

tcaacggggtt	aattcgtttg	actngcttct	ttggaccaag	tccatcgggc	gcaattgcct	60
gccgtcatgg	ccaatacacg	gtaccattac	ggataatggg	caatgctttc	ggaagaattg	120
aaacagttga	aactggaggc	tctgatgccg	aattacaggc	tacatcagag	aatcttcgaa	180
gcttttccga	tcaaategca	attccaacgg	ttcgctcggg	atgctcttaa	acgacaaatc	240
gctctcatgc	gactggatag	tatggcttcg	agtgcggatg	cactattgcg	cgactcaaag	300
ccaatcccaa	acgctatgta	cacttctccg	ttttttgatc	gtagtggagag	agatgagtat	360
agcatttagc	agatatattg	gtatgatgag	acaatttttc	tccccttctt	gctttttctc	420
ctcttattgc	actctattgg	cgtaagcagg	gtacaaagtc	gggagcgggg	cagttgcttg	480
cattgatgca	gaggcatacg	agcatgccga	ttattccgga	gttcggattt	tggcagacat	540
ctccatcgtc	attactccac	cgatacagtg	gctcgtaagg	aggctttgct	cttagccggc	600
aggccgagta	caaagaatgc	gaacgcaatc	tcgccttgcc	gatagtgtct	tgcttgttct	660
ctccgatcgg	atcgacagca	tgtccctcct	ttcagtaaga	cttcctctgt	ggagggaagg	720
tctcctgaat	tctattctcg	ggtttcgggt	aggcttcggg	tcaggaacat	actcgtttgc	780
gttgagtacg	gacacgcttg	gcaatctcat	tgtgctgagt	gtttatgccg	gagcgaggct	840
atcaatcata	ctgctatccg	agtgcgggat	atgcagacca	agccatgcta	cagactcgcg	900
acattcccta	tgatgctgca	cttaactatc	gtttgccgat	ttggggttgc	attacgaaat	960
agtgacctat	cctgtcgaaag	gacggtaaaa	atgggtgagc	tttttattca	ggccgattcc	1020
gagggacatc	tcttcggata	gatttgatgg	ccggaggcaa	agcgatgcat	acattccagt	1080
atcgaagacc	ggtgtgaaat	ccttgtctga	gaccgctcgt	ctgtcacaaat	gtacagctat	1140
cgtactactc	tcatggggaga	gagagaaaaag	gcanaaagcg	tatccgtatt	tgagcgacaa	1200
acttgggttaa	tctcccgata	gag				1223

(2) INFORMATION FOR SEQ ID NO:231

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 766 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...766

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:231

cgagcgtcgc	tatccggcct	tcggcaacct	ggtgcctcgt	gatgtggccg	ccgtgctgcc	60
aaagaacgtt	gcgatgccgg	ttatggtgtg	aacaatacgg	ccttgccgta	ttcctcgact	120
tcggcgcgatgc	catcaaactg	ttgggaccga	cgtgggtggag	cagaagtacg	gcaacctctt	180
ccagatgtat	gagaagtgcg	agatgagaat	ccgtacgaaa	cgccgatgat	gatctatccg	240
gctatcacta	tacgatgggt	ggtctctggg	tggattacga	gctgatgact	accacccggg	300
cctgtttgcc	atcggagaag	ccaacttctc	tgatcacgga	gccaccgtct	cggtgcttct	360
gctctcatgc	agggctctggc	tgacggttac	ttgttattcc	ttatacgatg	cagaactatc	420
tggccgatca	gattcaggtg	cgcgccttcag	cacggatcgt	cccgaattcg	aagctgccga	480
gaaagagttg	aagaccgcat	aacccgtatc	atgaatgtca	aaggcaataa	gtccgtggag	540
accttcacaa	ggagctgggc	cacatcatgt	gggacaatgt	gggaatggac	gagacaaagc	600
cggtttggaa	aaagccattg	tgaagctgga	cgagctgaga	aagagtcttg	gagcaatgtc	660
tatgtgccgg	gtgaagccaa	tgacctaacg	tagagctgga	gaaagccctt	cgattggcgg	720
acttcatcga	gatagtacgc	tgatggcgca	cgatgccatg	gaccgc		766

(2) INFORMATION FOR SEQ ID NO:232

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 661 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...661

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:232

cggcaagacc	tatacaacag	cttctatcgc	tgtgcatatg	tgcaacaaga	ctttacagat	60
tataccgacc	acagcaaagt	catagaagag	tacgaacgct	gagagatact	ggtcaaatag	120
cattctgtac	cttccaccag	tcaatgggta	tgaggatttt	gtggaaggat	tgaagccaga	180
agtgaaaagt	aacaattgga	atacaatgtg	gaaaatggga	atcttcaaat	ccatctgtga	240
acaggaaaaga	caaaggaaga	agcagatatc	attacttgta	ttgacaagta	tctgagtcta	300
tcaagggtta	tgaaaacaag	aagaaaattc	caacgatttc	cggagggtcag	atctgtgggt	360
atggtggata	gagggtaatg	acacaataag	catcgcatg	ccatttctaa	aagtgaaaaa	420
ggggagcagt	attcactatc	acacttaaca	ttgagaaagt	caagctgcag	gcaattgggtg	480
aagctataga	aataactggc	gacagtatgc	acaagcattt	atcaatgccg	taaagaaaagg	540
taccaacttg	acaaacaaat	ttcagacaaa	ccttatgttc	tcattattac	gagataaacc	600
agagggtaat	gtgtccaaaa	tattcggaga	acttatccct	tacttgaagc	tggataagcg	660
t						661

(2) INFORMATION FOR SEQ ID NO:233

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1048 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1048

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:233

ttgatccagc	tcacgggtgt	ggccagtcgt	cgagtgggct	tactatatgg	ggctatgctc	60
attgtgcttg	gcttgttccc	gggtatcggc	ctcatctttc	tctgatgccc	gatccgtatt	120
aggaggagct	acgctgctga	tggtcggact	gagccgcagc	cggtatacgc	atcattgcag	180
ctcaggatat	agaccgaggg	ctacgatgat	tttggccatc	agtctgtcac	tgggcttggg	240
tgtcggttga	tgccggacat	cttgcgcaac	atatctcttg	acctgagagg	tatctctctt	300
cgggaattac	gaccggcggg	cttgctgcc	taatttctaa	tatcttatcc	gtggcaaata	360
gaaccggcgg	acaagtagaa	aaccaatct	tttcttatgg	aattgctcaa	acagaggatc	420
ttgcaagatg	gcaagtgcta	tccggcggta	tattgaaagt	cgatagcttc	atcaatcacc	480
agatggattc	aagctgatgt	accatgtggc	cgaagaattt	gctcgtctct	ttgccgacac	540
ggagtcaata	agatcgtcac	gatcgaagcc	agtggcatag	ccccgcctc	atgggtgggtt	600
acatcatgaa	tctgcccgtt	gtcttcgtca	agaaaaacag	cccaagacga	tggataatat	660
gctgactacg	acagtgcatt	cctttacaaa	agccgagact	ataccgtttg	tatcagccac	720
gactttctga	cggatacgat	cgtattttgt	ttatcgacga	cttcctcgtc	tatggcaatg	780
ctgccaagga	atcatcgact	tggccgaaca	ggcaagtgtc	aagatcgtcg	gtagggcttt	840
atcatagaga	aagcctttca	gaacggggaga	gaggctctac	agaaagaggt	ataagagtgg	900
agtcgctcgc	gatcatccga	agccttgaca	atgctgcata	actattgcag	acgaaaacga	960
agactaacca	tacaccattc	aatacacatc	ccgtccgctg	gctcagtggc	gggatgttgc	1020
tttttccttc	cttttctccg	aatataaa				1048

(2) INFORMATION FOR SEQ ID NO:234

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 840 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...840

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:234

ttgtgacaga	ttaccatcgg	cacaccgaga	tgttttggcat	agctatttga	cgcttcgtac	60
ctccgacatc	aggcgtagct	actacgaggt	tctctaaggc	atattcttgc	ggatgtattc	120
catgaaaacc	gtagagccgt	agagatgtcc	accggcacat	cgaagaaacc	ttgaatctga	180

tccgcatgta	gggccacgtg	atcagacggg	taatacctgc	cttgcttagc	aggtcggcga	240
tcagctggcg	ccgatagata	cacggggctt	gtcctttctg	tcctgtctgg	cccaccgaag	300
taggggatga	cagctgtaat	gtagtgtgcg	gaagctcggt	tggtgcatcg	atcatcagga	360
gcagcttcat	caggtgggtcc	gaagatggga	attggactgt	acgaggaaga	catcccggcc	420
gcgaatgctc	tcctcatagg	aacggcaaat	tcaccatcgg	cgaagtgctc	gatattcatt	480
cgccccagag	gcaacccaga	ctggtgcaga	tcctttccgc	aagataacgg	gaatttgctc	540
ggagaagaca	gaaaagtgtg	tttcgttggt	catctttgat	atggtgtaag	ttatcggtcc	600
attgccggca	aatcgaagcc	gtcagaccac	ctccgagcga	ctgctgacgg	acatgatgca	660
aaagtaatat	atatacatta	tgtatgaagc	tcgaagaaga	aaagaagatc	gggatgaagc	720
aatggcagag	gcgttctgtc	acgctcgatt	cggctctatc	gcctctgtct	cgtgcctccg	780
cgccgcgtcc	gttcgaagcg	gtttttccct	gtcttttggt	cgtttcggat	cgacagaacg	
840						

(2) INFORMATION FOR SEQ ID NO:235

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 910 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...910

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:235

gatccccgtc	cggtcgggtc	cagcagttca	caatctgctc	cctgctcgaa	atagtctgca	60
ccacagaagc	gataagctgt	gtcttaccgc	taccggcaat	ccgcgaagca	aaaaaaccca	120
ataagggtcc	ctgtcgaaca	gatacttgcc	aaagatcgaa	tagccgaatc	ttggctttgt	180
gtcggggtaa	acggcaattt	ttcaatat	gtctcgccaa	ataattgtcc	atctttatac	240
aaatctatat	ttgcggggac	taagttactt	cctttgaacg	atatcctcgg	attcgtgggg	300
caatacggat	taggaagcgt	ctttagaaga	gattttaata	caaacaaagt	aagataacga	360
tgaagacttt	aatcaagatt	ttggtggctg	tacagtcgtg	gtgttggtat	atctcaccgt	420
gatgagcata	tatacccccg	tagtttcgac	aaagattcag	gccagtccgt	gaaacaagct	480
atccaaaaga	gctgaaaaat	atagctgact	atcaaagctg	attcgaaaagc	atgtatggtg	540
ctatgccaca	gcagatgaat	tggttaagctt	cctcgctaac	ggccgtgtta	ctacgtgaat	600
gccgaaggcg	aatacaccga	cgacatgcgc	gacaaagaat	gaccgaagca	caggcagctc	660
gtgcaggctt	gctcaaacgc	gatacatgtg	ggttgcagcc	aaggactctc	tgctcaaagg	720
tattgacccc	aatacgtctt	ggacattccc	ggttttgccg	gcaaaaagat	tttggttgag	780
gtagctccat	ccaacaggag	ataggtcggg	acactataga	tgtatccgta	tttaggcac	840
ggtacctttc	gtcgactacc	tcagcgatca	ggatcagatt	cgctgaagat	gaaaataaac	900
gatgcagaag						910

(2) INFORMATION FOR SEQ ID NO:236

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1133 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1133

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:236

gctaactatc	agctgtttgc	aactatttta	taggactttc	attgaagtct	ttgccgcaga	60
gctgattctt	aagtgttttt	cagattactt	gaggtttgag	agagatcgca	tgaagctctc	120
ctttcttcgt	caaatcaatg	cttgtgttgt	cttgatcaat	atgagagggg	gttattgtgc	180
aacgggtctca	agctgtaaac	cggcagctgt	gtatagaaac	agtccttcgg	tgatatggca	240
atcgacttcc	taactgcccc	aattttaccg	gacagcaata	actgattata	tgggttagtc	300
catcggggcgg	actttctctt	cgacaaaggc	gatttcgctt	tcgttaagcc	gtatttgcgg	360
tagagttggc	gatcaatttc	cgccaccggc	tgggtccaatc	gatgtccgat	tctgctgtga	420
agtcttgacg	ggggactaat	cccaagtttc	tttgggggta	tcttgcgttg	ccttgaggat	480
accagcatc	tgcgagcaaa	cttcgtcttc	acatagcgca	gacaagcctc	tgccctcgtc	540
gggtgtcgaa	tgccccaaata	ctaataaggg	tatcagtata	accataacg	gcgtgccaat	600
aattgggtgtg	ctgagtactt	caccgattgc	ccccgagcat	ttgtcttggg	gataatcacc	660
ttgtacttgg	caaaagttct	ctggatgggt	gatgtaacta	cgcttacacc	acttatagca	720
tctttgctta	ttggccgtcc	atagatacat	gccatcttct	ctcccttcc	ttgagggtat	780
tcataaagaa	aacctcagga	aacacatcaa	agatatgggc	accaaagctg	tactgtgcc	840
tgcactttgt	cttcggttca	aatcgggatg	ctcttggtag	agtcgtctgt	aatacgatag	900
agctctcgag	gtgcaacaag	gtttgaaaaat	gtagaggatt	ggtttgctct	actttataca	960
gaatatgatg	aagctcatca	aggccgaaaa	catcccaatc	ggccaagaa	tcattttctt	1020
gttccagtag	aggttgcgat	tcctcctttt	acatctacag	tagggaagac	ctccgcacat	1080
taggccaata	atcgactact	ctataatggt	gtcccaaagc	atcttttatt	cca	1133

(2) INFORMATION FOR SEQ ID NO:237

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 421 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...421

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:237

atcagctctg	cggcaaaaga	cttcaatgaa	agtcctataa	aatagttgca	acagctgata	60
gttagcgcac	tgatgggagc	agaatcagct	gacaatcggg	cctgcatcgg	tgcaggaagc	120

aagaatcagc	tgacaatcgc	gtcctgctcg	tgcaggaagc	aagaatcagt	tgacaatcgc	180
gtcctgcatc	gtgcagaagc	aagaatcaac	tgacaatcgc	gtcctgcatc	gtgcaggaag	240
caagatcaac	tgacaatcgc	gtcctgcatc	gtgcagggag	caagaatcag	ctgaaatcgc	300
gtcctgcatc	atgcagggag	caagaaacag	ccgacaatcg	cgtctgcatc	gtgcagggag	360
caagaatcaa	ctgacaatcg	cgtcctgcat	cggcaggaag	caagaatcag	ccgacaatcg	420
t						421

(2) INFORMATION FOR SEQ ID NO:238

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 635 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...635

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:238

ctagaggatc	cccggcaggg	gattcccgtg	aatataggtc	cactgggcat	ggcattcagg	60
cctatatctg	actccaaagc	ggaagtgatc	caccacgcat	ccccatggat	tcggcaatcc	120
ttatccattg	ctccgtgccg	taaaaactcc	gacaagtga	ggcttgagta	cgatacaggc	180
cggacggata	taagccacat	ctcccgtttg	gaagtttcat	cgtataagcc	tatcaattcc	240
tcatcaaggc	cacggcaaca	ggggcattcg	ccgcaatcct	gcgcatagcc	gcgtattccc	300
gtccctgacg	ggttgtccca	ccgaatggat	accgaaggcg	gataacgttc	caattttatac	360
atcgctctct	cttcttcgaa	agccccgttc	gctcgagacg	aataacggca	tccttcccga	420
atttctcgcg	gaccatccgt	acaaagcgag	ttccgattcg	aaatcgatag	ccccgatttt	480
aagttttata	agcggaaagc	cctcctccag	tttctcctcc	acacgccttc	gcatagcttg	540
aagcttccca	tccatatcaa	accgttatgg	gaatccccgc	ttgccggagt	gaaagccgag	600
ggaaaaagca	attccccggc	ccttgaagtc	ggcaa			635

(2) INFORMATION FOR SEQ ID NO:239

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 307 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...307

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:239

acgctgatca	acaagaaata	cacgaagcga	caaaatgcc	tcggcgccc	gcttatgacg	60
tgattctctt	attcaacgcc	agttcgatct	aagcgaacta	ccataaaaa	aacaagtagc	120
tgtaaatacat	actcttttgt	gattctcggc	tcgataatga	tcgggaagaa	ggggcggctt	180
ccaagtcatt	gggcttagat	gtagataaaa	agccatctga	aagcaatata	agtgtctgaa	240
aaacatgtgt	ggaaaataaa	acacactaat	aaccaatgtg	ttgtgccatt	ccttatatcg	300
aactcac						307

(2) INFORMATION FOR SEQ ID NO:240

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 720 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...720

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:240

aagggacggc	ttatgccgaa	gtgatgaatc	gaaaagtagc	tgctctggaa	gtgtgccacc	60
gacggaatat	gccacactgg	ctgcggactt	ttcccgggaag	cagccgtgga	aggatccgac	120
tgatggctg	cttattatac	cgcctacgcc	ggataatccc	ggccttcggc	aaccctctg	180
aggccgatcg	gctatggaag	aagccgaatc	catgctgagc	aaagcgggaat	ccctcggcgg	240
agatcgctccg	aaatagcctg	tttgcgtagc	atggccgcct	cggcacgcct	tttgtcaatc	300
cgcaagaacg	ctggcagaca	tatggagcag	agagcagccg	acattggctg	tcgcccttga	360
agccaaccct	gctaataccg	gagcctactt	ccgcaggccc	aaagcctgct	gtacaccctt	420
gcgagttcg	gaggggggcaa	gacaaggccc	tcccttttgc	cgagaagagc	gtgtcctgct	480
atgctgcggc	acagtgtcgc	ctgcctatgc	tccgcactgg	ggagagcagc	aagcacgcca	540
ctcctaagtc	tttgcaaggc	agaaacccaa	gagtgacttt	gcggccatgg	tctcctgac	600
gagaacctct	ataacctgca	atcttcgaaa	acacgaacga	aatcgttccg	attgtggcac	660
gtgttttctg	agaaaatggc	gcgagatgtt	tcgtttgtggc	gcgtaaaatt	tttgcttccg	720

(2) INFORMATION FOR SEQ ID NO:241

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 519 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...519

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:241

tctcaagggc	gagaacattc	gccccctcgt	aacgaaactc	ggcgtgacgc	actcgttgac	60
agactggaaa	agaacaataa	ggccttcgcc	gacttcttct	ccgccgtctg	agcaccgacc	120
aacgaggcaa	atatgacgtg	aaggcaccgc	tgccgagacc	gaccgcacat	tggtagccgt	180
ggtgcgccgc	atggacccat	cgacgacatg	gagccgagcc	cggagatccg	tcgctcatc	240
gagcttacia	ccgactcgtg	gccaatcgcc	gcgccctctt	ggctcgtcgc	gccactacgg	300
agaagcagcc	gtggagaagc	gtcgtgccga	gatcgccgag	atgtccgccc	cctgctcgcc	360
cggatcgtgg	aggagaagaa	gacggccgct	ttgccggctg	caccctcggc	acgggcaaga	420
accgccacta	tctcatcaca	tcgtagccga	gaacggcgac	gaggaggatc	gctgggtaccg	480
catcgacggg	aacaactcgt	ctatgtgccc	gaagacgaa			519

(2) INFORMATION FOR SEQ ID NO:242

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 912 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...912

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:242

ggcccaaggt	cgggagtttc	gacggagggt	tcggttcttc	ttatcttgcc	gttgtgtagg	60
tcagaagaag	acgagggaga	tctggttttt	atgccgtcgt	ataccgctgc	ggaggccgaa	120
gctatgggga	tggtaaacia	ggtggtactg	ccgcgagggt	ggaggacgaa	acggtggact	180
ggtgcaagac	gatattagcc	ggagtccgat	ggcgatccgg	atgattaaac	gggctttgaa	240
tgccgggctcg	acggtcagag	aggattgatg	gagtttgcat	gggatgccac	cctttgtatt	300
atcttatgga	agaagctcag	gaggggaaaa	atgccttttt	ggaaagcgga	ctccggattt	360
cgacaagttc	cctaaattcc	cgggttgatg	ctaaggccga	ttatatcccc	tataccttga	420
aattcaagga	gccggcaggg	agtcgcgggg	cgttttgcat	accaagcaga	cttatttcgt	480
gagggtatac	acgatacttt	cccctctcgg	gcaggttacg	gcgaggccgg	tttattccgg	540
gattgagtgc	ggaagaggga	gcggattacg	aagagcggct	ggcggagggt	gcaacggcgt	600
ttgcgggttt	actcccagac	cctggcaggg	atatcctctt	tgtgtttcgg	gatggaaacg	660
gcgcttgccg	acttcgaggg	cgggggttgc	ttttcccttc	ggctttcact	tccggcgagg	720
cggggattcc	cataacgggt	tgatatggat	ggggagcttc	gaagctatgc	gaaggcgtgt	780
ggagagaaac	tggaggaggc	ttccgtgtat	aaaacttaaa	atcgggctat	cgatcgaatc	840
ggaactcgct	tggtaccgat	ggtccgcgag	aaattcggaa	ggtgccgtat	cgtctcgatg	900
cgaaccggct	tt					912

(2) INFORMATION FOR SEQ ID NO:243

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 459 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...459

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:243

tggctcatcg gctctctctc gattcggata tccaatcgta gagctatcgg gccggtgcag	60
gtctgcgcat gcgttcagcc acccgcgccg gtataagcgc gaggtcactg ctgctatctg	120
tatggctttg agcgaatcgc agaatgagtt catgatattg agaatgccat attgactatc	180
cgacgggtgg agcgcagtat tcaccatgga gttctaagat atatggactg agatctccta	240
tcgaaggcat atgttcacaa gtaaacaatga tagacaatga aaganaaaga taanaagctg	300
ccccactaa aaaaagcaaa agctactacc cccaagaccg gaagnnaaga aaggagctat	360
gacngacgac atctatgctg ctatcttcgg tncctctctat tcaagagacc tatgaaagct	420
catgatgctg aacctatgaa gtcacgatca aagcgtcat	459

(2) INFORMATION FOR SEQ ID NO:244

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 943 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...943

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:244

tacagcttat gaaaaagtta ttctctttga gtgcgggtcat cgtactctta tttccttgca	60
ttcttgcgcg cctcgcacatca tcaccgagct gaacaaacgt accctccttt gcccgaggga	120
acacctattg cgggtctacga actcgaaacg gtaagcgtcc cccttcggag gctgagctgg	180
tagggaaaagt gaggatgccg aatccggtct atccccggga gttctccta ctcggaggcc	240

gtgcaattgc	tcgcgaagaa	accagaaaaa	gcggtgccaa	tatcctgtac	gtgacaatca	300
ccaacgaccc	tctatcttcg	gcagctccat	gcatcagata	ggcggcttat	gctcttgtca	360
gattctgtcg	tgaggaacga	gggagaaggt	tacccgactc	gccccgttac	gattcgggtc	420
aaagggggaa	aatcggtctc	cgatcaaggc	ccccgtacac	gacctctcgc	tccatttcgg	480
ccccctctatc	tcacgaatcg	gacaaaaggg	ctgtcttatt	cggagcagca	gctggagaaa	540
agctaagcaa	cggactttcg	ttcgtactcc	aatataaatg	tcacccgaag	ggaacctcta	600
cggattcgggt	ctgatcgctc	ctcgatatga	agccgactca	ctaagaaaat	cgaataccag	660
ggatatcggat	tcgccaatcg	attggatata	tcgctccctt	attcagcatg	agtactgctc	720
tttcggagcg	gtggtgcttg	ggataagttt	cggcttaggt	tatttgggct	tcaaacaaac	780
gctgccgaca	tatccgaccc	gaagagggaa	ggttacttct	ccggcagcac	agtggagcca	840
atacggcact	caacgtagga	tacaagctga	acaaacattt	agcatcgggg	gagagatcat	900
gatggtcgggt	ggcgttttcc	atccggataa	ctaaagatga	cga		943

(2) INFORMATION FOR SEQ ID NO:245

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 734 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...734

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:245

gaggatgtaa	agaacgacat	cttaccgata	cgtgccgaaa	gaataaagac	aaagccaact	60
ctgcaatgat	caatccccac	agcaatccgg	gattcatttc	atagtatata	tcaacgaact	120
cttagcaacg	agcatggctg	taagagcgtg	ataccgagtg	caccaaacat	ccatgtaaag	180
acatggcgca	tagttgcgtt	tggagcgtac	tatccacata	gacagtggat	tgattgttca	240
attcgtaaag	ttcataaccgc	gtttcgttat	ttgcttatat	tttattattc	tgttcctatg	300
gtaattcaac	aaggatctcc	ggtaaagggt	ccaccacttc	acccccctg	catcgaaata	360
ctctacattc	tgatccatca	tacatggctg	gaatcctgtg	ggaactcaaa	tttctcttcc	420
gttgatatagc	ccagcttggg	acagcgtata	cccgttgtag	aaattcggca	aaaataggca	480
acgcagaagc	gccccctgcc	cattggacat	agagtcgaaa	tgcacagacc	tatcctcacg	540
ccaacccaac	agccggccac	aagagaagga	gtaaagccta	cgaaccagca	tcactgttat	600
tctgtgtggt	acccgtcttt	cctcccatat	cgagtttaat	ccatagcgat	acctcagtct	660
gctaccggta	ccgcatcgca	ctacggcttc	aacatataga	gcattcttga	tgccgcttca	720
ggtgggagta	cttc					734

(2) INFORMATION FOR SEQ ID NO:246

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 669 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

gctgcacatg	tccgtgcggc	gactttggat	atcttctctt	actgaggagt	ctatccgtga	1860
agctttgcga	ggctgcgcga	cagcgaagaa	tttcattccc	tatatgaggc	cgactggctc	1920
gtgccatagg	cgactggcta	ttgggtatga	acgctacgcg	ctttataaccg	cttccgcttc	1980
gggggcaacc	cgacaggtac	ttttccatcg	accgtgtcca	gactccgac		2029

(2) INFORMATION FOR SEQ ID NO:784

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2702 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2702

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:784

tttgcgtcgg	tttcgtttgg	tttcggccag	ttggcggatg	gcctgttcgt	atgacctccc	60
gatttttctg	ccagctgaag	cacttccatt	ttttccggct	cttccgttgt	atagcagaga	120
tacttctttc	ggccgaagac	ttcgggtgca	tagacagccg	attgcgtgcc	gcccagcccc	180
atccagacct	ctttgtgagt	ctggacggat	cgttatccat	attgatggac	aggatctgcg	240
acttccctta	tcggtcagcc	cgaggagggt	ctgtatctgg	tcgaatttgt	tggctacttg	300
cgctggtcga	gaagaatctt	gcaatccgaa	ttgttgatga	tgcctccttt	accaccggcg	360
aagagatgat	gtcgtccacc	tcctgcgtca	cccgattgcc	tccccgaaat	acttgcgcac	420
cgttttgtac	atatacttca	gtagtcggcc	atattggccg	aggcgatcgc	tttccaggct	480
tcctcgacga	cagttgtttg	cgaacgcctt	tgagtcgcct	catcttattg	atgaaagccc	540
catgatgatg	atggttacca	cggggaaaag	ttcccgggtt	tccttgatgc	atcgatttcg	600
aagacgataa	accgcttcga	caggaggctg	atgttttgtc	cgaattgagc	aggaagtcca	660
aacgaccgcc	ccggtagtag	tggcggggcg	agtcagaaaag	ttgtcgatat	tgaaatcttc	720
ccggtgact	ttgattcgcg	gttttccagt	tccggccggg	aggatcgcgc	catgaattcg	780
taaacgtatt	gaagctcggc	gttatccctc	tgtccgaacc	gatcaggcgg	ataaggccga	840
gacagcgctg	ccgagctcgc	ccgattcggg	tttcgatatt	tttctctctc	gcttttccag	900
agcgtcaaaa	gcagcgtttt	gatactgtct	tcttttcgac	gtcgaacacc	ccgtcatcgg	960
tataaaaagg	attgaacgaa	tcggctcctc	ttccgtatag	gtaaaaataga	tgccgtcttc	1020
acctttcggt	tccggtggat	gagcgaacaa	agtccttggt	aggagttagc	cgtatcgaca	1080
gcaacacatg	cgttccctgt	tcgtaatact	gccgtacgag	atggttctga	aaaacgattt	1140
tcccgaaccg	gacggtccca	ggacaaaattt	gttgcggttcg	tgataatccc	gcgtttcatc	1200
ggcaagtccg	aaatatcgag	atggacgggt	tgcctcgtag	gcggtcggac	agtttgatgc	1260
cgaaggggtga	aagcagctgc	ggtagttcgt	ctcggccgta	aagaagcaga	gagccggctc	1320
gataaggtgt	agaatgtttc	ttcggaggga	aaatcgcccc	cattgcccgg	cagccccgcc	1380
aatagagcgt	agccgtgtcc	gtcgtattgt	gacggggacg	gactccatca	aggccagcgc	1440
cgagcctaca	tcgtttttga	tctgccggag	tcttcccggg	cgtcgctcca	tgccagcaca	1500
ttgaaatgcg	cacggatgga	gcgagtcctt	gggagtgccg	aacgttcagg	tattcctcga	1560
tccactcggga	ttgatctgat	tggagcgaga	gaagcgtgca	agtgaagaca	tgtttcggcc	1620
tgtttctctga	agcgcttgag	attttcttcg	ctgtcgtcga	taaagagtac	tggttataga	1680
tatggttaca	cgggagcatc	agccccgacg	gagcgcgaaag	ctcagccggc	agtcgctgcg	1740
atcgggtggag	agccgttcgt	aacgccgtcc	gttgcgacgg	cagcaggcag	atcgtcccgt	1800
atcggaacaag	gtagcaggca	gaggatttga	tccccgatcc	gcacttcac	ggcgcggagc	1860
cgaggtcttc	gagcgtgcct	gccgcacgtg	cgcgtaacga	gaggtaacgg	tgagcaagcc	1920
acgcttgctg	tccgtgcctg	cgatctcatc	cgccgaaaga	gcttgaggcg	catatagccc	1980

gaatcgttga	tgatccgttc	gaactgatca	cggcctccag	aaatttcagg	acggcatccc	2040
gctcccggac	ttccttcgca	gaagggttcc	gcgacagagc	gtcgagaaat	cgcttcgttg	2100
cgccatggct	gtttcgtcgt	tttcgtcaga	cagaggtaga	cggaatgggtg	caggaaggac	2160
gttcgttgaa	atgccgttcg	taagagcggg	cgaggaacga	gagatgtcct	tttccaactc	2220
cggacggtag	cttttccgaa	taaaccagtc	ctgctgtgca	ggatgctgta	aacgggcaag	2280
accttcaccg	ccttgtgcca	ggcgcgatgc	tcgcccgta	ttcgggtgag	gtcacggtaa	2340
agagttcggg	cattcaagag	agaaaagccac	ggtgatgtcg	gcatctttcg	atacgatgca	2400
gcgttctcga	tggccagcag	cgggaacttc	tcttccagtt	cgcatttctt	cggatatttc	2460
tcatggcgtc	ggttcgtttg	tcgttacagc	ccggacggaa	gaatacggcg	gacaggacgg	2520
cgagagagca	ggtaacgggg	atgccggcag	cggctccccg	tttcatcagc	ccgtgttctc	2580
cgtacttgcg	gttcatccga	acgtttgcca	caccacgagg	gtggcaccgc	atacgcccat	2640
gcccagcaga	gatactgggt	catgccgcac	atgtagcaga	tgacgacaag	gatcacgtcg	2700
cg						2702

(2) INFORMATION FOR SEQ ID NO:785

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1603 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1603

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:785

acatttttgca	ctgcaaagcc	cagttttttcc	tgagcactca	gccagaagga	tagtaaccgg	60
cggagcggag	tagcgggtatc	agcataggat	cgctatacat	tttctctctg	cacggctttc	120
tccaatagac	atcatcgtctg	caatcgacct	tgagtattag	gcttggcact	gaccacatcg	180
tcgaattgta	cagcagaccg	gatgcaagca	gactatccaa	tcgggggggta	ttctccagag	240
gataacatag	ctatgcatat	aatcagggtcg	ggctgactca	cccagaacga	gcacaccgtg	300
tgtggcgctt	tagggggagac	tttggttaacc	atatctctct	ttgactggag	ttaatgcat	360
cgaaaagggc	attgatctct	ttgccttcca	tcagctttgc	gagatgctcc	ataccaacct	420
ctcacaaggt	gcagctgtcg	gtaggagaaa	gcatagcctc	tatcttcgga	gagctgatca	480
agagcttttg	atagtgcgaa	actgctgcat	agagtattgg	gctaagaaac	agaagcagtg	540
aggaaagaga	aatttaggtc	tgcttgggag	tagatgtagt	agccgaccag	ggttagactc	600
acaagccaaa	cgatcgcata	ccaacctgcg	acatgacaat	atcgctccaa	gagaaagcct	660
ctcgccagaa	tgcactggcc	tcggctatgt	agtagcaaga	aatgcagtag	ctatataggg	720
gataaaaaca	gtccctagca	cctgagcagg	tacatctcga	ctacgtacat	aagcgttgcg	780
atcagatcac	gggccacata	atgcctcgat	ataaccgacg	gctcgggatg	gctcaagtaa	840
taaataaacg	accaagctcc	aaacaatcgg	ggcaatcaga	attccgcaaa	tcgaacctcc	900
atattccaag	agaccaatac	tcggcgatag	gttcattgac	aataagctgt	aaaaaggcca	960
ggaaaaacag	cagatagctg	ggctcagcag	gcgggtggaca	taggtgttag	aggcattctg	1020
ccgaagactc	aatccgagtt	gcgtaatttt	gaaaaaagggt	cgatcatagt	atTTTTTTTta	1080
ttgctaataga	ctttgattta	taagtaacat	tcgtagacga	ggaggctatt	ggattgagat	1140
tgtataccgt	ttagaggatc	atagtagaag	tatgtatgtc	caaagggtgtc	ggaatgtgtt	1200
ctttgaagat	gttcaactga	aacgcacaaa	gatattgtaa	aatattgctg	catagatgaa	1260
attaaccaat	agactcaggg	gacaaccgcc	tcaaaatgct	cccgttttaag	tttgattgta	1320
gtgtgtgttt	ttgatatgcg	aggggaatag	tcttttgaga	gagagcaaat	actgttgatt	1380
cgttcgatct	catggaaatg	tcgttcctgt	catcactcat	tTcgttcagt	cttcgtgact	1440

atacagtgtgta ggaagtttgg taaggtttgc cgagaggagg tgtgtcgggtt ttcagcggag	1500
gacttcggga atggcccggg caatggcgca gagtaaagcc tgacgtgtgg ttcctttctg	1560
gccgatgaca acgatgtgcg tcgggcccga agaatacgtc cgc	1603

(2) INFORMATION FOR SEQ ID NO:786

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 762 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...762

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:786

aaatatgaag ttagcatcgc caactttctc ggaagtaagc catagcactc ctgtagatga	60
agtcaaatcc tcgattatct atccactggg aaaaatcttc cggaagcact gctggagtta	120
ttcataaaat tctacaagaa ggtatcttac gaagcctaata tctcccatgc tcaacgagga	180
atattatatt cgggcttggc tttcttgatg aagtcgccaag aggtgtcctt tgcagaacga	240
atacgcgtgaa agagcgatac gagctgatgc tgcgcaatcg aatcgggcaca aaggcgagga	300
ctttatctac gaacagacca atggcagttt acatcgcttc agcgagatt tacgctcaac	360
accatactcg tcttttatga gccgggatgc caacatgttc cgagctgatt cgccaactgc	420
atcaggatga ttggctgcgt atttggtaga atccaaacaa ctaagtattt tattcatata	480
tccggataat ataaaaatgc atgggtggcc ggtttgtccg attttccga tttcgtggag	540
taggaatcaa tagcgatagc agtatcacag atcgacaact gtatgatata aagcctcacc	600
aacgatctat ctgcttgata atcacggata tgtaatttaa aagatgtaca aataggagtt	660
ataaaagagt atctgaaaga gaaaaagaat actctctgct tacgaagtat ttatgcatta	720
cagggaaaaa ataccgagaa tcttctttgc agctctgcag at	762

(2) INFORMATION FOR SEQ ID NO:787

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 402 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...402

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:787

cggcacaccg	aaaggcgcaa	gccgggtcgt	ccgcgcaaaa	acgccgaggg	gaagctcccc	60
aaagcgaaga	cgtcgcagcc	gctcctgccg	agccgaacac	gaggaagctc	aggccaaacg	120
caagcgtggc	cgccctcgca	aagcggcgaa	gagatagcgg	aagagacccg	ggaagatgtg	180
cagcagctcg	tggctcggct	gctgcagagg	agacaaatgc	aacggagaag	gagagtgccg	240
ggcggagccg	gcggcgaaaa	cgtccaccgc	atccccctgc	aaagcccctg	ccaagccctt	300
ccccgtccgg	cggagaccac	cccgcgcgtg	gcaccgtctc	cccttccacg	acgcccgtag	360
gcgagccggc	caaggacgat	gccaagcccg	agcgcccgct	cc		402

(2) INFORMATION FOR SEQ ID NO:788

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 639 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...639

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:788

gggccttaat	agtccggcac	caataccgag	aagtgagata	tgcaaggagg	aagaaattag	60
agatatgctt	gactcctgtc	aagtgatccg	agggcttcca	tatcctttgg	catactgtga	120
gaggaaagtg	aaaagcgcac	ttccgtacaa	tgtttgccga	tctcatagcc	ggccttcgtg	180
aagagttcga	tcttgttaca	cttttgttcc	acttgttggc	tgttgtgtag	gtcagaccga	240
agtcttacgc	aaaccgttgt	cccaactcca	tttatctttc	aggtagttgg	catcatgttc	300
aaatagaggt	tacctgccac	cgtgttttct	ccaccggcag	cccgttggtc	agagaagtct	360
gagaggcatt	tagtccggtc	acacctttta	tatccagtc	tttttgggag	tgtcagatgc	420
agtgtttgct	tcttggtcgt	tgcaagggtg	aacagcaagc	caccattgc	cagaaaaaca	480
atcagtcctg	tcatctggta	ttttcttctt	tttttaaagt	gaaaacaaga	aagccgcaca	540
gaatcatcga	tgcttgacag	gcttgaaaaa	aggtggggcc	aataggatcg	aacctatgac	600
cctctgcttg	taggcagatg	ctctaaacca	gctgagcat			639

(2) INFORMATION FOR SEQ ID NO:789

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 831 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...831

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:789

```
ccccctgcat catacagagtc aagaaaaaact ttttacacaa cacctgatga tatgcccacc      60
ggggaaaccc acaagtctcc cccttcttcc tcgcatcgagg actgtccgat gccgaagtct      120
tacatagccg agctaccacac ggctcgacga actgactccc cgcgagcgcg aatcgctctg      180
gagcaagttt ttcgagagtt caaagatccc atcatcatca tcctgctcgt ggccatgggtg      240
ctttctttgc cgtggcttgc tatcactact tcacggggcgg agagggcngt ctctcttttc      300
tggagccgac aggggtgctg ctcgctgtcg tattggccac ggggtagcct ttttcttcga      360
gatgaaatcc gagaaagagt tcgagatcct gatcagggtca atgaagacat attatataag      420
gtatatcgca acggcatgat cgcagggtgc tcaaaaaaga aatcgtcgta ggcgacctgg      480
tcgttctgga acgggagagc aaattccggc cgacggccga ctcatcgaag ccattctcgca      540
cagatcgacg aatccagcct gacgggcgaa cccgttgtaa acaaaaccct gaccggcagg      600
acttcgacgc ggaagccacc taccctctcg attacattgc cgaggcacca ccattctgga      660
cggccactgc actttcaggg tggaaagggt ggcgacgcca cggaatacgg acgggtattc      720
gagggtgccc gaccaacaac agcgtacaga cgccctgaa cagacagctc gaccatctgg      780
ccggctgatc acgaacgtca gctatagcat agcagccttg gtactcatcg g      831
```

(2) INFORMATION FOR SEQ ID NO:790

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 531 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...531

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:790

```
ggccgatacg gtggttatca ttgatggtag tattctcggc aaaccgcaaa cagagaagag      60
gccgctcgga tgctacgtac gttaagcggg cgtacgcaca ggtggtgacc ggtgtgtgca      120
ttagccaccg gtgggagaca agggcttctc gtgttccagt ctggtaacct ttgcgcatct      180
gagtgatgag gagatcatta ttatctcgaa cgctatcgcc cctatgacaa agccgggttcg      240
tacggataca ggaatggata ggctacatcg ccattcagcg agtggagggt tcgtctacaa      300
tgtcatggga ctaccggttc atttgctcta taatgaactg aaaacttttg cgaatcaaat      360
taaagtctct atattttgcac cccgaagtgt aggagagata actaacaaaa caatataaga      420
gcaatgaaaa gaacatatca acctctaacc gtaagagact gaacaagcat ggctttcggg      480
ctcgtatggc acggcaaatg gccgtcgtgt attggccgtc gccgtgcaaa g      531
```

(2) INFORMATION FOR SEQ ID NO:791

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 570 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...570

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:791

atccccgaca	ttttttgcag	ataggacttt	gaaagtaagg	cctctttcta	atgaaaaacc	60
tacctttaca	gacgaaacgt	ttcggggaaa	atatgatgaa	aagagagaat	gaaaagaatc	120
aatatcacca	tcggcctttct	ctttataact	tcgtagtgat	gtccgtattg	ggatacccg	180
gcgaaaggat	agctccgacg	gtgccgaccg	gctgggtgacg	tatctgttgg	tttgcgcttt	240
ggagcggtcg	tactcatcct	attacggtgg	gtattgatcc	ggcggtaaca	gatggcgagc	300
gtcgcgggca	cgatatggaa	cagtatgccc	gatacgatga	aaacccgacg	aatagtcacc	360
taacgctaca	gtgaagtatg	acgaacacgg	caagctctat	ccttacatat	tcaatcccat	420
tcttcgaccg	gtcgtgtggg	gggccgcagg	atacgccctt	tcaagggaat	ggagcccgcg	480
ccgacgaaaa	atcgagaaaa	gctgggagaa	tttcgcatgt	gagcgaccat	taattcgggtg	540
ttggcaaacg	ggccttcttt	gccggtaaga				570

(2) INFORMATION FOR SEQ ID NO:792

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 780 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...780

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:792

cagaagaata	aagggttaagg	gtaggtcaaa	aaagggtatta	tagaatagac	tccaaacgtt	60
ttgcacaaaa	ccgacggagt	tcgttcgttt	gtaattgtca	actccccctt	caagctttcc	120
tgaaaaatga	gttctatccc	cttttctcaa	tgcgatggct	aatttgtaga	gtgggtgcta	180
ttggttcaac	atgtctatag	actgatgaat	aatgaagggg	tatgatgggg	ctttttaatc	240
atgaaatctg	caagtttctt	gctataaaga	taagaaaact	tgcagattta	tcaaggtttt	300
cgcaaaacta	tcagggcaac	cgcatacaat	ctttagtagc	ttttgagata	gtctatatcc	360

agagcagctt tgaacaacct cttccgtaag gaagtttgtc tttatgcccg gatacaatgg	420
ctaaagcaaa ctttctcaac ggttttagatt ggtggctgaa taatccttac gagctcgaca	480
agtatcctcc taaagggttac atccaaatgc caatggagtc gattctcaat tccccaatgc	540
ctcgaatata ttgtccgatt aactgacaat cctcgggtgg taaactgca tataatactg	600
cctatctatg cgagtctctc cctctaaact actaatccac gctccacttg aattaaactt	660
ctcaagcctt gccattgact atattcccct cctcaaagac ctctgaagct agtaatgtgg	720
tataaagtc tcttccaata cgaccatgat ctttctccaa ggttcataac gatgacacct	780

(2) INFORMATION FOR SEQ ID NO:793

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1069 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1069

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:793

tcgggcagta ttttcagagt gatttggtgc ttagtgaagg aagatattcg aagggccgat	60
acgacgagga aaatatgaag agtacggtag tgccctttgt aacggcatca tgctggcggg	120
agctgcgggg ttagccgaga gcagggggtg aggcggattt atatcgccaa tcacttcggc	180
gaccatgcca tatacccgat tgtcgtgcct catttattcg tccgatgacc gaagctgttc	240
ggtgcgtacc acgaacggcg tgctcataga agcaccttat actgatatta ctaaacagat	300
attgcacgga taggagcttc attgggtata gactatgccg agattggagt tgctacaagg	360
gggggggtgt tcattgtggc gtttgtggta ccgtgtagag cgcaggggagg ctttgcacga	420
tgccggcatt ccggatgcca cgagtacgaa gggtgagtat acttcattcg gcacgaagtt	480
atcaggcgcg tgaagaaaat agggctgcta tccgatacgc atggctatat cgacgaaaat	540
accggataca tttcgccgat tgcgatgaga tttggcatgc cggtgacacg gctctgtaac	600
ggtagcggac tatttgtcgg gtttggctcc gctgcgtctg tctatggcaa tatagacggg	660
caagacattc gtctgcagta tcccagagttc tgcgcttttg tgtggaagag gtgaaagtgt	720
ttatgacgca tatcggggat accccggctcg gtacgaacct cgtatatatc gaatgctcgt	780
gcagacccac ctctgtcttt tgtctgtggg catagtcata ttctcaaagc tattaccgat	840
aagaagttgg atatgctgca tctgaatccc ggagctgcag gtagtatggn tttcatgctg	900
ttcgtactct gatgcgttc gtgaatcgat ggccgagata tacnggattt acagggtgata	960
gaattggccc gatcgataga tattaagat gaaacatttc attcttcaaa gcttgcattt	1020
tcttctcccg ctgggtangcg gatggatatc ctcttcgtgg tcgtgggtgg	1069

(2) INFORMATION FOR SEQ ID NO:794

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 604 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...604

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:794

ataggggaat	gtttggcccc	acgtatatca	gcaggtgggc	aatctgctcg	agtcgtacgc	60
caatcgaacg	acagagccat	ccctcaagcc	atcggccgtg	cctcacctac	ttcggcgaat	120
actggggcaa	tcggctcttg	gctgcagcgg	tgctctgcac	gagctgcggt	acagtggagg	180
gtataggact	tgggaaaaga	ggagagggt	gaagactgac	cctcaagtac	tgccctatgg	240
catattaaca	atagaatcat	ggtagccagt	atagataaag	aagccgttgc	cggctggagg	300
cagagatatt	ccccggcacg	atccacctga	tcgacaaacc	ccagccatcc	ccgaagccat	360
aaggctgcta	tcggccagtc	gcacgatcgg	ctcgacacgg	agacccgccc	ttctttcgtc	420
cgtggcgccc	gtccgtccgt	actctgatgc	agatgtccac	agaaacggac	tgcttcctct	480
tccgactcaa	atgatagata	taccggagga	actgcaacag	ctactggaga	atcccggcaa	540
ctcaaggtag	gactgagcct	gagcgatgac	atgacgggtg	tcagacgggc	aaaccgatcg	600
aacc						604

(2) INFORMATION FOR SEQ ID NO:795

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1162 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1162

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:795

cgagacttcc	attccccccg	atztatatgg	ataagaagaa	cgccattggt	attccgatga	60
tacagtctac	attcaaagcc	nggacaaaat	actccgagga	cgtcttttca	ctgcaactca	120
agatatgggt	gagtacacca	tattcaacat	tccggcgact	tactatgtga	gtgaagagga	180
ggacaaatcc	gccgacccat	accgattcgt	caaggggata	ggacagcaaa	gcctgccgct	240
tctccttcat	gccgagacca	tcggtttctc	caaccaccaa	agagcaaaaa	tgaataacctg	300
tacatactga	ttacactttt	actctccggc	tttttttccg	gtgtgagatt	gctttccttt	360
cttcggacaa	actgcgtctt	gagttggaca	ggatagaggc	gatctcacag	gcagagcggt	420
aaacttgctg	tatcgacatc	cgaccaactg	gtgactactc	tccttggtgg	taataaatatc	480
gttttggtag	ctatggtctg	ctgatggcgg	gattgctggc	cgcacctttg	gcgcaatggt	540
tgataacgat	gctatgatcg	tcgttctcca	atctgtctta	tccactatat	catactgttt	600
accggggaat	ttctacccaa	agccattttc	aagaccatgc	caatatgatg	atgagggtat	660
tcgccctccc	tatcgtagcg	atctatatct	gctttatcct	ctgtctaaac	tcttcaccgg	720

tttatctcgc	tctttattcg	tctgggtggac	aagaattatg	tgcttacaac	agtaggggtg	780
gggccgtaga	tctcgatcat	tatttggcag	aaaatatgtc	cggagaaaac	gaaagaacga	840
cttgactacc	gaagtgaaaa	tcattccagaa	tgcgctggat	tttccggtat	tcagggtcga	900
gactgcatga	tcccacgcaa	tgagatgata	gatgtgagtt	gcaaacggat	attgaagtac	960
tcaaaacgac	ttttatcgat	ccggtttgtc	caagatcatt	atctacagac	agancataga	1020
tgacgtagtg	gatatatcca	ttcgagcgaa	atgtttcgtg	ggcaagactg	gcaaaaacta	1080
tcaatactac	tgtattcgta	cccggaaagc	atgtatgcc	ataaactatg	cgactactca	1140
tcgagcgcaa	gaaaagcatt	gc				1162

(2) INFORMATION FOR SEQ ID NO:796

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 4479 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...4479

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:796

cagcagatcg	gactgaagac	caatctgctt	tattggggta	cgacgactcc	aatgcaggat	60
tggagtttcg	catgggaaag	aagtggacac	tcgatgttcg	ggaggttaca	acccttttac	120
attcagccac	catcgaaac	tcaagcatgg	ctcgtggctc	cggagcttcg	ctattggacg	180
tgcgaaagctt	tctccgccac	ttcttcgggc	ttcacggcat	cggagggtgag	tacaatgtaa	240
atgattcgac	atccccatcg	gccggctcaa	aaagctcaac	aactaccgat	acgaggatac	300
ggcatcggtg	cagggtctgac	ctatggctat	cagtggctgc	tggcaaaaga	tggaacttgg	360
aggcatcgat	cagcggagga	ttcgtccact	tcattatgac	aaattcgaat	gtgccaagtg	420
cggcaaaaag	atcgcggaag	gaagaacgac	tacttcggtg	tgacgaaagc	cacactttcg	480
ctcatataca	cattaagtaa	taccttattt	atacagacaa	gctatatgaa	acagagtcgt	540
atatcatcct	gtcgtttctc	ttcggaatgt	ctacgcttgc	cgtgacagcc	agacccatct	600
cggggggcatt	aagggtgagcg	agaagcacgt	ggtcaagaaa	cgggacatac	cgccaacgta	660
aagatggacc	ttgatcttga	cggccaaccg	gatatgaaca	gcaatctgct	gatgggtggtt	720
acccccatta	ttcgtccaat	acatcgaacg	atcaagtcgc	tctccgcccg	ttcttcctga	780
tgggaacaga	cgttatcgca	tcatcgaccg	tcgtatcgct	ctcgataagc	acccatctac	840
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ggctgagaac	tcgggctgtg	cgactgcccc	ctcggatcag	aagaaaccac	acttacggac	1020
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gctgctgaaa	aaacgcgaag	agactctctc	cgctcactta	gcctatcggg	agggaaatat	1140
gtggtcttgc	ctcagttcga	cggcaatccg	gccgagtggc	acgtatcgac	agcaaaactga	1200
aagaaatcgg	aaacgatagc	gatatatttt	cgaaaagctc	tccatggtag	gctatgcttc	1260
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gcgggtctct	ctatgccact	tgtctctcgga	ctattacccc	ccgcttcgcc	gaagcgagct	1560
tacattccta	tcgtgggtcaa	aggatttgag	ttggacaaga	cacgtgaaat	tatcaagcac	1620
accctctcgc	tctgagtcgt	gcagaggttg	acgccgtagc	gcagagtatc	cgggaaggag	1680
ccacgaacgc	tacgaaacgt	ggacgatagc	agagaaactt	tccgaaagc	gatagagccg	1740

acagccaatg	cggctataat	agacttcgtg	ccggcaggta	tccgcaggct	ctggctcgac	1800
tcgaagcacg	caaagcgaac	ccaaactatg	gatgctgttg	ggcttggcat	atgcctacag	1860
cgaaaatggg	ctgaagccga	gagctatctt	actcgcgctg	cgagcaagg	cggcccggag	1920
cacaacacaa	tctgaacgaa	ctgcgacgct	atatgcaaga	aatctctaaa	tggaaaaaga	1980
ttcttagaaa	acaatattca	cttttaaaaa	aaaacgagat	gaaaaaaaca	aagtttttct	2040
tgttgggact	tgctgctctg	ctatgacagc	ttgtaacaaa	gacaacgagg	cagaacccgt	2100
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tacgaattat	gctgtagggt	ccggcttcta	tgtctggaaa	gtaaatatga	tgcaagcaac	2820
gagcttcgtg	cgacgatcct	tttatctatg	gaaagctgct	cgataaggac	ggcaaccctc	2880
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tactatccgg	tattggtgaa	ctatgatggc	aatggctaca	tctattcagt	gctattaccc	3000
aaggacaaaa	caaaatcggt	cgcaacaacc	actacaagtt	tcgctgaaca	tcaccggccc	3060
cggtagcaat	actcctgaaa	atcctcaccg	gtacaagcca	acctgaatgt	tacttgccaa	3120
gttacacctt	gggttggtgt	aatcaggctg	ctacttggta	atcgaccctg	caaacgacta	3180
aaaaatttca	tagtttgtct	atatcggaat	acagggagcg	gggttcgctc	cactcctgta	3240
ttcattctct	ccaaatcaaa	tagggaaatc	ccaatcacca	atcaagaatt	attgttatga	3300
acgacgctaa	gaaatatatc	gtatcgggtg	tgtcttactc	gtggccggaa	tgtttggcgg	3360
atgtatcaaa	gaggactatt	cgattgtccc	cgtccgtttc	gcctgaccgt	cagggccttg	3420
gatgccgata	gcaagatatt	accgaaaacc	gagccgtgca	gcgcgtcggt	attttctgtt	3480
cgacgaaaacc	ggccgcgcga	tcgaccgact	gatgatggac	gccgcacagt	ggctgcacgc	3540
aaaccgatac	cattggaata	cgacggcccc	actacgggtc	tttcgtggca	tgggcccaacc	3600
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gctttcctct	accgaggtat	agcccaatcg	cccggagacc	ttttttccgg	tgtactgacc	3720
tgccaataga	gtacggctct	atcgaacagg	gtacagacca	aactgtcgat	atcaccgccg	3780
tacggcacag	gtacatatca	tcatacgcg	ctatcaagag	tgctggaagc	taatggcccc	3840
agacaactgc	cagactatgc	cgacatcctt	tgggagaaaac	tcgccgacact	tataccggcc	3900
tggccgagct	catcggcaat	ccgtccaata	ccgtcccagc	ggacagatac	aaaacgggga	3960
tttcatttcc	ccatcttcag	agtttatccc	acacttgata	ctactcctct	gcactctaac	4020
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accgcgtcata	ggcaaaatgc	tcaatatcta	catagactgc	gtggagcaaa	cctcaatgta	4140
ctcgtatccg	tcaccccttg	ggacgagtgc	aacaatatgc	agaataactaa	tccgacagct	4200
attatgaaaa	tgaatatatt	catcatcctt	cgggactact	tccacgcctt	ctcctgttat	4260
tgctttaacg	atggggcggt	agcatgtacc	aaggaagata	atcccgatca	gccacctcgg	4320
acgaagtggc	aacagtaaag	atgtcgcttg	acgatgtcga	atgcgaggcg	gagacctcta	4380
cagtggagaa	aatctgatca	agaaagtgcg	atattcgtct	ttcgtgaagg	gctaaacggc	4440
ctttgggttc	tcgacaagca	aaactatttg	cttcgggggc			4479

(2) INFORMATION FOR SEQ ID NO:797

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1772 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1772

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:797

caagtacatt	tttcatcccc	aaatggctna	cttcagcagc	aatgtgatct	caactacagc	60
cgcattgncgg	tgcgtcggaa	cgaatggatc	atcgggatga	gtncaacgag	gacttcgatc	120
gggtgaaaac	gctgctgctg	cgtctgacga	tgaggaaaccg	cgtattatca	aagacccctt	180
ccccaccgtg	gtcttgagga	attggccgac	agctctgtga	gggtgatggc	acgtgcgtgg	240
tgcgcacgga	cgacctgtgg	aatgtttact	gggatataaa	cgaacgaatc	tatacgaatt	300
caatcgtcag	ggtatagcat	tcccgttccc	gcagcttacg	ataacggatc	cgccgccggg	360
caggagcgaa	gagggaaaag	tacggaagct	catcgccgga	gaacgtctcc	accaatacct	420
ccctgtaaga	gttgaagatc	tggatttgga	cacgaatccg	agataacatc	cctgctcgtc	480
tatgacgggc	ggttccaagc	cttggtgtcg	tcgaagattc	gcatgatggg	ctccatggaa	540
tcgtattgac	tattttggcc	ggaggagaaa	ccatgaagcg	gctgacctga	atctctcata	600
cagctccggc	cggaacatga	tattgcggat	attgtccgca	ataccagccc	catcagcagg	660
ttgttctcgt	ccaggacggg	gaagacttgc	gatggctgat	accgaacacg	tgtacgacat	720
ctcccagagt	catatgggtc	tcaccgggtc	gaaatccttt	tctatcaccc	catccaacgt	780
catagcgtca	gcacggcctt	gtctttctga	tgcgtcagca	gctttccttt	ctggccaaac	840
ggagcgaata	gatgctgtgc	ggcatgaaaa	ggcgatagtg	gggtacgaac	tcgtactcac	900
gagcatgagc	ggaaggaaaa	gattgtatcc	gcggtcagct	cggcgatcag	gaaaatacct	960
gtcagcggcg	cgtgcatgac	gcggccatca	ctccggccat	gccgaggaga	gcaaagtttt	1020
tctgtggcaa	tagacctcga	tgaagggaaa	gaagttcagc	gcataggcaa	agatgaatcg	1080
ctcagtgcc	ccatgaacag	actgggcgcg	aaaagtccgc	cgcagccccg	cccgaattgg	1140
tggtctacgga	agcgaacacc	ttcgtgatga	tgataatccg	aggaaaacga	acagcaccca	1200
ataggaattg	gaatacggct	cgaacggctg	ccatccatca	aagagctgta	ctggccgccg	1260
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cgcgaggata	aaggccgata	tgaggtagcg	ttggcgatag	tgtggaaagt	tctgagtttg	1380
ctctcgaaga	cgaacatgac	cttgagaaag	tagaaagata	cagtccgcag	aatacaccca	1440
gtagcagagc	ataggggatg	cgatccatcg	aaaaggatcg	ttgagcgtaa	agctgaacat	1500
ggctccctgc	cccgtgatat	ataggatacg	gcggcggcac	tgaccgagct	gatcagcagc	1560
ggcagcacga	cgacatggtc	agatccagca	ggaggacttc	gatgacnaat	accaaccgt	1620
gatcggagcc	ttgaagatcc	ccgaaatggc	acctgcggcc	ccacaccnac	gaggagcatc	1680
ancgtcttct	gtcccatgcg	ganancngc	ncnagttgga	gccgatggca	ncccccgtna	1740
gtacgatagg	gggattcggg	tcgcgccgac	cg			1772

(2) INFORMATION FOR SEQ ID NO:798

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 595 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...595

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:798

cgcgtaagca	atcttctgga	agaggtgact	gcgatgccgt	tcgggcataa	gctatcttca	60
cgcatggggg	aactattctt	tgtgctcagg	tttatgccgc	ttatatgagc	ttgagacttg	120
cttcgagcac	caaacaccct	atgggggatac	gttatgctgg	tcgtttctga	taaaaaataa	180
tgaggcgga	tatactgcgg	cccaattatt	ggtaccttta	cctccgataa	aagcatcaac	240
atgaaccatc	catcggcata	ttcgactccg	gttatggagg	acttaccatc	ttgatgagat	300
ccgcaaactc	atgccggagt	acaactttgt	ttacttgggc	gatatgccc	ctctccctat	360
ggcaaccgct	cttatgaagt	agtttacaaa	ttacgctaca	ggctgtgaga	aagctctttg	420
aactcgggtg	tccgctagtc	atctcgcttg	taatacggca	tcggcaaaag	ccttgcgaa	480
cattcagcaa	gcgatctgcc	caatatggag	gatcccaccc	gtcgtgtcct	cggtatcatc	540
gcctacgggt	gaagccgtag	atgagatcac	aagactaagc	acgtagggtt	ttggc	595

(2) INFORMATION FOR SEQ ID NO:799

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1156 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1156

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:799

ggcgattatt	tccttcgcga	caatttgtca	cttggtatct	ccgttgcacc	ctgcgagtgg	60
gatggagaaa	caattggacg	gccaacgtta	agttgtcgtt	tgtcttcttt	agaatctttg	120
tagaggacgt	tttttcgcaa	ttgcagtttt	tcagtacacg	tcgcttttct	caaccgttga	180
gaaaatcttc	gtcttgacga	gggcgacgcc	gtagatggct	gagaggcgat	ctcgcaggat	240
ggcggatcgt	tgccgcgaag	gctgacggta	agcctgcaat	tctcgacaaa	atccgcgagc	300
ggatggaggc	tccggcatct	ttcaccagtc	gcatcacttc	tccagcaaa	gatattcgaa	360
ggcgatagtc	agttcttcat	acaggatctc	ttcttcgggt	cggctgcttc	gagggcttcg	420
cgagccgctt	cgcgataagc	acgataagac	cgctcgtgcc	cagcttgaca	cctccgaagt	480
agcgactac	gcgacgaata	cctgcgtaag	ccccaatgag	gtgatctgcc	cgaggatggt	540
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ccagcttgta	tgcccagcat	acatggcggt	catcgaatag	cggcgacgca	gatcggccac	660
aagcgacagg	gcctcctctt	ccgacttaca	ggataggcga	aagccaggaa	gcggctgcgt	720
ttctccgtgt	actgtcttcc	gagggagcac	tgatcgtgag	gtaggaatct	tcggccatgg	780
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taaatcatcc	tttgggggtc	gccatcagtc	cgtgagtgtg	tctcttccat	ttgcatgagg	1080
ctatgcgga	gatattgata	tgcccctgct	cgcgaacgcc	cttcggtaag	catcatcttc	1140
accagcttcg	gcatac					1156

(2) INFORMATION FOR SEQ ID NO:800

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1076 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1076

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:800

attctcttct	tctctctttc	gaatggccag	ggaaagtcag	ncgaaaaagg	aagggacttc	60
cctttaccct	ttattttccg	gctgcgtatc	gnagggcact	cgcgtcctgc	attcagagct	120
tgaggttcat	atccaccact	tcttgctttt	gcggttgaaa	atagcttcga	taccgcctgc	180
cagatagtcg	aaaggatctc	aatgaaggga	gaagcggtc	cgagcatcac	gaagttggat	240
gcacgacatt	gcctacctca	tcacgggcga	tgctgtccgc	atcgatcaga	acgtatgagg	300
aagagattcg	atcttggaga	taactgacgt	agtcctcgga	tagtcgggat	gttgatgaac	360
ggaaccgtat	tggtcactac	ataaccgtca	ggttcaaata	aggaagatag	cgcaatgctt	420
ccatcggctc	cacggagagg	aaagatccgc	tcccccgata	gggatcagg	cagagtaaat	480
gggtgcatcc	acaggcgcag	aaaagactgt	acatcaccac	ctcgtggct	catgccatgg	540
tttcggcctg	cttcaaatac	aaattgttgg	tcagagcagc	cgaaccgaag	ctgctgcaat	600
ggacaaaatg	ccttggcctc	cgacaccggc	caaaatata	ctgttttcat	ttctttat	660
cctcctactt	caatgggtat	tccttgcctt	tgacggttgg	gcagctttgg	cgtcgcgagc	720
atgcttttgg	atgcaacgcg	acggggaatg	atgacggata	caccttcata	gttgatttcc	780
ttccgatgat	gctgcatagt	tcgtcatgat	tcttgggtac	cggcaacagc	tcctgatgtg	840
atcggggatc	tactccgata	ccgcgacaga	tggcctctac	ttgccgtatg	cagacgaatg	900
ctgacctcgg	tcattggagat	ggattcattg	tcgagataat	caccgtaatg	tgctattctc	960
attgatggca	tcgagaagac	cgttattccg	aatgagtgaa	agtagagtcg	ccgattacag	1020
acacagccga	acaagccggc	atnggcagcc	cttnggcata	gtgatagatg	caccat	1076

(2) INFORMATION FOR SEQ ID NO:801

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1015 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_f ature

(B) LOCATION 1...1015

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:801

aactggaaaa	tgaacaaaaac	cctccaagag	gggcttgcat	tggtcaaaggg	ttggacgcag	60
ctttgaaagg	gcgtacgac	aactgtgacg	tgattatcga	acccattca	tccatttggc	120
aagtattgcg	gcagccatcg	ataccaccgt	atcggagttg	cagctgaaaa	ctgtgccgat	180
aaggagtcgg	gtgcattacc	ggagaggtct	ctgctgctat	ggtagccagt	accgggtgctc	240
ggtattgatt	ataggacata	gcgaacgccg	tgcttactat	catgaaacat	ccccatcctg	300
atggagaagg	tgaagttggc	tttgtccaat	ggcttgaccc	ccatttctgt	gttggcgaag	360
tcttggaaga	gcgcgaagca	ggcaagcact	tcaggtagtc	gctcgtcagg	tggaagaagc	420
cctgtttact	ttggatcaga	cgactttgcc	aaattgatcc	ttgcttacga	gcctgtgtgg	480
gccatcggtg	gggtaagacg	gctacggcag	accaagctca	agagatgcat	gcacatattg	540
taagagtata	gccgctaaat	atggaaaaga	ggttgcgaac	ggttgttcat	tctctatgga	600
ggcagttgca	atgcagccaa	tgccaaagaa	ctctttaccg	tgcggtatga	gatgggtggc	660
ttatcggagg	ggcttctctc	tcggtaacaa	attcttgcc	atcatcgaag	cattctgaga	720
ttgcttattg	tttcaaccct	ttcgggcgag	ttttatttca	aaaggagaaa	cgaacgagat	780
gaaacgattt	tctttttagt	ctcctattgc	tttcgttggt	ttgccattcg	tcacggaagc	840
tcagggttcc	acatcggtc	atagcaaagc	cccgatcagc	atttcgaagc	tctcagtgcg	900
gagcacgaag	gagaaggcat	catcaccatc	ttcagcctgc	atccgtaaag	ctgccgtggg	960
caagtatccg	gacgttggcc	nttgatcgan	ggcgagagca	tatccgttga	tccaa	1015

(2) INFORMATION FOR SEQ ID NO:802

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 577 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...577

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:802

gatccggctg	actatcgccc	gctattatac	gccttcggga	cgtagcatca	gaaaccttat	60
gcaaaaggga	atttcaaagc	atacgaacag	gaattgatgg	tcgcttcaaa	cacggcgaat	120
ccatccacag	cgacagcatc	cgtttcccga	ttctcttcgc	tacaagactc	tcgtcacggg	180
gcgcaccgtt	tatgggtggg	aggcattatg	ccggatcttt	tcattcccaac	ggatacggcc	240
ttgttaacaa	gctgcatcgc	gagctgctga	acaagggtat	ctttaatcgg	gctgactcaa	300
atatgtggat	gcacatcgtc	agaagctgcg	ccaacgcttc	cccacagaca	gtcatacgcc	360
acgtttacat	ttccgaagaa	ctgactgaaa	gctgaaagca	tttgccgaag	ctgagaaaat	420
cacatggagc	accgaacttt	ngctcaagcc	gaagagctta	tcaagtgtca	gctccatgcc	480
tatatcgcac	tgatattctg	gggagaacga	cttcttctat	ttcttcaatc	gcatggatag	540
gatatataaa	gcactcgatc	tctcatgatc	cgacgaa			577

(2) INFORMATION FOR SEQ ID NO:803

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 850 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...850

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:803

cgaagccg	gtgatgc	cagg	cacagct	gga	aatgga	agcc	aagcg	tttgc	caaggc	gaag	60	
tctatc	ctcg	aaaa	tttat	tgcca	agagt	actc	ctcaca	gtattg	ggtg	gcacg	agggt	120
tcac	ctctt	gtcc	gatatt	tata	agaaga	agggg	atacg	tttac	ggcaa	ggcag	tattt	180
ggaa	agcttg	gaaa	agacta	tccta	atcat	gaggat	gaca	ttcac	gaaca	gatag	cccaa	240
cggct	gaata	atctt	ctgta	cgatt	catca	ctctg	agttg	gaaata	aatga	acagat	catg	300
aaata	tcaat	tata	tacggc	cg	tataatg	gctct	ctctg	tatat	ccg	tt	tg	360
cccc	acgaaa	tacag	aaacc	aaacg	ccccg	accg	ctgcg	agg	gagctta	ctat	cgttaa	420
tgacc	agact	gtgg	agatgg	acatg	cggat	ccg	cttccg	ctgc	atacaa	ggcc	atcgaa	480
cctcg	attaa	acctt	tccgt	ccgga	atata	acaag	cgtac	attcg	gattt	gtcc	ctgaat	540
ttc	ctcttca	ggcag	gaaca	atctt	ccgaa	tat	cctgccg	acgga	aggca	tatga	agcac	600
cggg	gggtacc	tgaat	atcgg	tatc	ggccat	acg	ctaacca	gcga	atggat	gccg	gctatc	660
gtct	gataga	tgcag	agcag	gagag	atgaa	tcttt	tcctc	tcct	atcgtg	ggat	gaaatt	720
ggctt	tcaat	accgg	gactt	cgac	ggcgac	agaa	aggata	gacga	aatga	tggc	aggaat	780
ggac	acgagc	agcgc	aggcc	ttc	ctttgtg	ctt	gctaccg	gctt	ggatta	ttca	accatt	840
attt	caatac											850

(2) INFORMATION FOR SEQ ID NO:804

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 680 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...680

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:804

aggatcccc	gccatgc	ggc	gatctt	atcc	tgggtc	ctcta	tgggc	atcac	tttgc	atgtg	60	
tgactggg	tataag	gaac	gcaagg	aaat	tattga	cagg	ggctg	caaaa	aagg	ctgtg	120	
tcctcata	cg	agatcg	cact	gtcg	ccctct	tgaag	agagac	aatcg	cccaa	ctgg	acgaat	180
acttct	tctca	caagag	gaga	ctttc	gacat	cccc	ctgctt	atgg	caggaa	cggag	tttca	240
gcaaag	gtat	ggggc	gagct	gctga	aatatc	ccctac	ggca	ccac	gatctc	ataccc	actc	300
ttgcac	gacg	aatagg	aaac	cccaa	agccg	tgagg	gccgt	agcc	gtgcca	acggag	ccaa	360

tcccatatcc	atcctcgtgc	cgtgccatcg	ggaattggaa	gcgacaatac	gctgacaggt	420
tacgggtgggg	gattggacaa	aaggaattcc	tgctttcgtc	atgaaatgag	tctgccggtc	480
taaagccttg	aagcctctcg	aaggctatct	atatttgagt	atatttgcaa	gcataaaaca	540
gttatataaa	aacaaaagtag	aatatggatt	tcattctttct	tcaaggccga	ccacaagccg	600
gaggcctgtt	cggaggctca	agccagatga	ttctgggtctc	gtgctcatgg	tagtaatctt	660
ttactttctt	atgatcaggg					680

(2) INFORMATION FOR SEQ ID NO:805

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1089 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1089

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:805

gcaaagtctc	caattcggca	tcattcatag	cctcggcaag	ggcatagcgt	tcttggtact	60
ctcaaaagct	ttccagccgc	tccagtcctg	tttggccttg	ctctgggtac	gatctgacgc	120
atcatagaac	gggcccgaatt	gcctcccaag	ggctgaagct	gtcaaaatcc	atcgccaata	180
taaagtaggc	atagaaacga	cggaggcaac	cagattactt	tgcagatccg	tctcattata	240
ttcgagggat	cgaactgggt	gtattcgaag	ttcagttcct	gatctcgcca	aatagctgag	300
gagaaaaata	ggagggaattg	taaatagggc	gacgagaagt	aacaagagtt	cggccttgta	360
ttgactttcg	tcttttactt	cggttaaggtt	gaggaaaaag	gtgcagtcga	tacgctctgc	420
aaaactgaat	gtggccggtg	tcatcgagtc	aggttgagga	gatctgagag	ctgacgctcc	480
aatgtcttga	tgtctccgca	ttggcattac	tgccgagacg	ttcgctattg	atagttacct	540
ggcattcaac	tcctgactta	cagcagagcc	gtatagaaaa	acaggcagtc	cacaggcccc	600
accacaatct	ccttctcatc	ccaatccgat	tatatagcca	caatatcttc	ggccacctcg	660
accttgcttt	tgagcggata	gtccgaggtc	ggccttcact	gtcgaatatg	gtgatcttat	720
tcgtacctac	tccaatccgg	ctcccgcate	ggaaaagcgaa	ttcagtacta	tcgcatccaa	780
gtgctggctt	tcattcttgcg	catagcctct	tgctccccac	tgctcgctctc	caagcaaaac	840
ccaccaaccg	ctgtcctgca	cgtttgagtg	ctccgagcgt	agcgctatat	ccggattagc	900
agtcaagcga	agatcgaagt	cgcccttggt	cctcgtttca	tctttttctc	tgctgtctct	960
gccggacgat	agtcagccac	gctgcggaca	agacggttat	gtcggccttt	tcaaaagggtt	1020
tccgacaggt	tcgagcatct	ctacggcact	ttccacatcg	atacgggtcta	tcccttcgca	1080
gttgctctgc						1089

(2) INFORMATION FOR SEQ ID NO:806

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 569 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...569

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:806

ggatccccctt	gcataacagt	tgtttgcttc	gtgcctatct	gtgaatggag	cgcgcaacgg	60
aaataccgga	ctttccatac	agagaggaaa	gggtagaaca	gcaaaaagca	gggtgaaaaa	120
tagtcgtttc	atctttttgt	cttatttttg	tggaaattat	gattgataag	cccttcctttt	180
cccttcacgc	taaatagatag	tcgtcccata	aagggggggga	taagggatga	ctaaataatc	240
tttgcatcac	ggtctccata	tcctttccaaa	ctaaaggcaa	tggaatttta	ttgcctttct	300
tcgattcttt	gctgttttta	gtgttatgat	tatagcttcc	tgcaaggaaa	cacatttttt	360
gcttttcaca	aggctgataa	gtcttgattt	tttgttttag	aaattttatt	cttccttggt	420
tttgctcggt	ggcattttat	gtactctgtg	ataccacttt	atatcgggtc	gaatctctgc	480
ctgtgtggat	ccagaaagggt	ctgattttct	atataatcgt	cccttaaaaa	acccgaatta	540
gccgagatgc	catgggaata	atggatatc				569

(2) INFORMATION FOR SEQ ID NO:807

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 528 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...528

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:807

cggcgatctc	gccggtttgt	gtcaggctga	gcctgcctgt	ggcaacggta	tacgcgtatt	60
ctccgtaacg	cgcttcataa	agagcaggat	ggccaaaaca	gtcctatctc	tatggcaacg	120
gtcaagtcca	ggatgacggt	aagcaagaag	taaccagcat	gacgaggcta	tcgctgcgag	180
ggccgcgacc	gatattgcca	ccgaacgcca	tccgctcata	ttgtaggata	ctatgatcag	240
tactcggcca	aacaagccat	cgggatgtat	gccgtcagag	gcccaggaga	cagcggatca	300
gcagtaaacac	gaaggcgtgt	atgatccctg	caatggggaga	gcgccgccgt	tgttgatgtt	360
ggatcatcgt	cgcgctatgg	ctccggtgac	ggaataccac	cgaagaacgg	aaccactata	420
ttggccgcac	cctgagcgat	agctcggtat	tgctgttggt	ctttttcccc	tatcacacca	480
tcgggctacg	ttggctgaca	agcagagatt	cgatagcttc	caacaggg		528

(2) INFORMATION FOR SEQ ID NO:808

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 653 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...653

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:808

tccgtgtcga	tgcgatccat	tcgaattttg	gccggagtaa	cctctccgat	atcttcttca	60
tggcagccat	atagttgttg	atcttggtgc	cacctccatg	agaataatgc	cggcgccgat	120
atcttcaagg	aggcctgaga	ggcgtagatg	ttgaggtagt	tggtgtgat	ttcgtccatg	180
cgagccttgg	ccaggcattg	acttcggagg	agcggaactc	tctttcggaa	aatttgtcgg	240
caaagtcatg	cggaatgata	cgttggactt	attgtcgttg	atcatcgaca	cgtgttgagc	300
ttcatgttct	ccgcctcctg	ttctgtcagt	cgcaggctgg	tcaatcgctg	gtgacgttat	360
aacctcccat	cggaagtacg	cgaagcatgg	ccacagcctg	tttttataga	tagataccga	420
tgtacagccg	gcacctatat	tacgtagcaa	catcccaatg	tcaagctcgt	cgtccgaaga	480
gcaatacctg	gcttcgcaaa	gcggtgtgac	gaggatgcct	gtcaagcgca	atcccagact	540
tcttctatgg	cgatgcggat	attctgcttt	accgaacggc	gagcagtgtc	aattggaagc	600
cgggcttcaa	gcttcatgac	aaaatacttc	cttggccgta	tcttcctgtt	tcc	653

(2) INFORMATION FOR SEQ ID NO:809

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 626 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...626

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:809

cggtatgggg	caaggtgccc	aaacgtcagg	gtacaggtta	cgctttcgaa	atactgccgg	60
agcacgaccg	aaacaggacg	tcggctttta	cggacttaga	cggcagagga	aaaagacttc	120
cctacatata	cagagtacat	atcccgttgg	cctcgatcgt	atcgccggat	gttttgaacc	180
aatggagtac	agatccttca	gtccgatcaa	cgatccggga	ggggataact	tccaccacta	240
tagagggcag	attacgatga	ggcacggaag	tctattctcg	atcgttataa	gcagataacg	300
gagtggaagg	caactcggcc	gaagccacta	acaacattac	cgttacaacg	tgtccagccg	360

tttgggtgccg gatgtggaag acatcaatca ggcaatacgc tcaacgagat agagaagtat	420
ttccagtacc cgtgtggagc tcatccctct aaaatggttg tggggcaaaa ctatatgtc	480
gattctcgca caaagaggta gagttgcgca acggtaaaaa ggaaacgata acctgggtata	540
gttcaaagtc cccgtgcggg aattcgagag aaagatagga ggcatcacga cttcaagacc	600
attcgattca tgcgtggtct acctga	626

(2) INFORMATION FOR SEQ ID NO:810

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 595 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...595
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:810

cgctcccttag caggctgagg cactccggta aaaccggcac cgatcggctt cgatatgcaa	60
gcaaacgtct gaagcctctg ccagcccctt ggcatgtcga gcaaaccgaa acccgtaata	120
tcgggtggcac cccttatccc gtatttcgca tcaactccgc ccctgctcta ttgagcaggc	180
acatctgccc gatggcgctt cataaacttc actgccgata agccccaac ggtgggcagc	240
catcgtagc ctattcccag cggtttggtt aggacgaggc attgccctgc acgtcgccgg	300
catttgtgac cagatgtctc ggatgcacta tgcctgtaac ggcagtccgt acttaggtat	360
gggatcgtct atcgtatgcc ctcccacgt aaggcaccac tctcgtctat cgtctgctgt	420
cctccacgga gaatagtncg caagacctt acgggaatcc cttcggaggg gaacatggtc	480
agattgagta caacagcggg cgcccttcca tggcatacac attcgagaga gcattggcac	540
agctatgcga ccgaaggat aaggatcgga caaaccgcgg gaagaaatcg gggt	595

(2) INFORMATION FOR SEQ ID NO:811

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1492 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1492

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:811

tgaagattc	aaaagtgact	accgggtcct	tttgccggcc	agtgaagaaa	tctatgtcga	60
agaagaagcg	tttccccttc	ttgcgcggta	ccgatgcgcg	gcatcccgaa	tgtccgacac	120
ccatattgaa	gaacggcgaa	cgtgaagaaa	ncgaagatgt	agtcgtatac	gataccagtg	180
gccccatac	cgatactcct	atgaggtgaa	tctgcaccga	ggcgtaccga	agatacgcga	240
gcagtgatag	aggatcgggg	cgatacgggtg	cggctcgaag	ggctcagctc	cgaaacggac	300
ggataaggca	gtcggacgct	tcgctcgaaa	agctgcgtta	cgacatgtgt	gcacgcgtcc	360
ccgtgccgcc	aaggacggct	gtgccacgca	gcctactacg	cccgtcaggg	gatcgtgacg	420
ccggagatgg	agttcgtggc	ctccgcgaaa	atcagttgat	cgatcaggtc	aggacgcgct	480
atcgcgctga	gaggggtgagc	cgctcggagc	tgttattccg	cgcaagatca	cgcccgaatt	540
gtacgcgacg	agattgccgc	cggacgggct	atccttccgg	ccaatatcat	catccggaaa	600
gtgagccgat	gatcatcggg	cgcaatttcc	tcgtcaaata	aatgcgaaca	taggcaattc	660
gccccatcagc	agtaccatcg	aggaagggtg	gaaaaggccg	tctgggccat	acgctgggggt	720
gccgatacgg	tcgatgatct	tccacggggg	atcatatcca	tgagacgcgc	gagtggatca	780
tccgaattcg	cccgtgccca	tcggcactgt	gccccctctac	cagacgctgg	agaggtgcag	840
ggcgtatgtg	cgaaagctcaa	ctgggagata	ttccgcgata	cgtcatcgag	caggccgagc	900
aggggtgtgga	ctacttcacc	atccacgccg	gctgcgttgg	caccacgtgc	ctctgacctt	960
gcgccgcctc	acgggggatcg	ctcccgcggg	ggttccatca	tcgccaactg	gtgcaccacc	1020
cacaagcgca	aagtttcac	tacgagcatt	tcgaagagat	ctgccaaatc	ctcgcacgta	1080
cgacgtagcc	atatctctcg	gcgatggcct	gcgccggggc	tgcatcccga	cgccaacgat	1140
gctgcgcaga	tagctgagct	gaagacgctg	ggcgaattac	cgagatcgct	tggaaagtata	1200
acgtgcaaac	cattatcgaa	ggaccggaca	cgtgcccattg	cacaagatcc	gcgagaatat	1260
ggagattcaa	ctcgagcctg	ccatggcgca	cccttctaca	ctctcgggcc	gttggtcagc	1320
gactggcgtc	cggctacgac	catatcacat	cggctatcgg	cgcggcacag	atggatgggt	1380
cggcacagcc	atgctctgct	atgtgacgca	aaaggagcat	tgggtctgcc	caaccgcgaa	1440
gatgtacgtg	aaggtgtagt	aacctataga	tggctgctca	tgccggcggg	ga	1492

(2) INFORMATION FOR SEQ ID NO:812

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 556 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...556

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:812

ggatcagtac	cgatgaagaa	gagataagtc	gacttgagca	agaagtcttg	cctttttataa	60
agagattgag	gcccgaagcat	cgtttgctgac	cgaagaacca	ttcgggcagc	ctccgctttg	120
gaaacttctt	tgtgcgaatc	cttacgcagc	tcaatatgcc	tcatgtccgt	tttgtcgttg	180
atattcgctc	gacagatacg	gccctcacgg	agcagacaag	gtcgtttttt	tgttttcggc	240
gaatagcaga	tggagccgga	gccggtatcg	gagattgcct	caggaggaga	gattctcgcc	300
tgatgttggtg	tctgaaagct	ctcattgcag	acaagcgttc	tttccggcca	tcgttttcga	360
tgagatagat	accggcggtat	cgggtgaagt	ggtgaccgta	tgggagagat	tatggctcat	420
atgggacaag	gtatgcaagt	gtcnccatca	cgcacttgcc	caaatagcag	cccaggggga	480
acggcactac	ttgtctataa	agatgaaaca	ggcgaacggg	caacgcacctt	cattcgtgat	540

(2) INFORMATION FOR SEQ ID NO:813

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 311 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...311

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:813

```
gccttaacat tgaacaatct aggtctatta tacagcaata acaatgagca aagcaagcga      60
aagactgcc acaagaggcc ttggtgataa gaagagaatc gtaaaaaaaa gtcctcaggc      120
ctacaatcaa gacttggcta tgacattaac aatttaggcc ttttactcgg caaaaacaat      180
gaattaaagc aagcgaagat tgctatcaag aggctttggg gaaatacaga gagcttgcaa      240
agaaaatcct caagtctata acccgaggat agcctcagta ttgaacaatc tgggggtctta      300
ctcaacgata a                                     311
```

(2) INFORMATION FOR SEQ ID NO:814

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 566 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...566

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:814

```
ggcaaccact gccttcggat agcgttgcag tacttctgcc gtattcttgg aagcggattg      60
ataaagcgga agtgagccaa agccactttc ttgccggcct gcgcatacgc tccattgtct      120
catagagggt gccataggta ccgccccacc gatgatcaaa agctcggcat cgtctttatc      180
gccgtgtact tccaaacagg aatatcttgg gcaatagcct gaaccttggc ttcacgcgta      240
gcgacatctt ggcggtgatt tccggattgg tgctgatggc atcggtcaca tagtcttctc      300
```

caaaccgccc aaacgggtgct ggaagccttc ctgtccgggg ataccgaata gcgaacgtgg	360
gtctcttcat ttctgaagta aggtctccat ttgcttcgcc cttatactga tccacgtagg	420
gaggacggat atcgggatat gttggggatc ggggattctc catgcagagg agccgttagc	480
gatgaaagca ccgttagcag gataccgggtg tcatatgctc aaagctatct tacatgcccc	540
aaagcagaag tcgaagcagt ctgacg	566

(2) INFORMATION FOR SEQ ID NO:815

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 458 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...458

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:815

ggagaagcct ccccgatgg agttcgagac aatgggttact tctactacag atggcgatag	60
cccttatcgg aggagtactt atgacccttt tgatgctgtg gccaaaggct ccttcgtgac	120
catgttcagt cgcaatagcc ccgaactgtg gacttttact atagtatcgt ccccttggtc	180
gtcttcatgc tcttttgtct gtcttcgaac tctacgccac acaactgatg cgaatagccg	240
tgcccagctg atccgcgagg tagtgctcag gctgatgctg atcgtcgttt atctctctat	300
gcctttcgat gggtaagtc tggaagtttt catcgccata tttttgcagc ctatgccgca	360
tgtatgctct tgctgttggc ttatatccgg cgatcgccaa ggtcaatctt cgtcaccaat	420
ggggctttct gacaccggag cgaagcgcaa ttttctcc	458

(2) INFORMATION FOR SEQ ID NO:816

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1297 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1297

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:816

ggcatccg	tc	ggacgaagaa	gccaagtccg	tggtcaagaa	tacatggttc	atctcgggtg	60
taatagttgc	gagcaaatcg	tattttgtct	caagcgtatg	ccgagccgtg	taagaagcat		120
gtggacaaca	acttcaaatc	cgctgccaag	gtctgtgtat	ccgaatttct	tgctgcacgc		180
gaaaaactca	ttctcttatt	aaagaggcca	agctgatcgt	gtccaacgaa	acggatgaga		240
tcttgatccg	atgacttacc	gcggcaagga	catcaagaaa	gagctaaagc	agctcgcaag		300
acacagctta	gccgcattca	gcagggggcg	agcagtctga	agattctctc	gtctatctga		360
atctcttgca	ggagtcgcag	cagttggtga	attattggac	gatctgatcc	acgccacgga		420
gaagctgttc	gaccccgtag	ccggatcggc	acggacgaag	aatttttcaa	ctgacggccg		480
atagctctgt	ttttcctcac	tgtgcatccc	cctgataaag	ggctttccga	atacattaaa		540
ggatgtaata	acggaggatc	agggataaat	aattgataaa	agcttgtgaa	gagaaaaaaa		600
atgccttact	ttgcaacccg	attatgaccg	ctttatgtgc	tacaagcagt	cctaacgaac		660
tggaacgata	ataaactaat	aacgaatagc	aatgtcaaa	atttgtcaga	ttaccggcaa		720
aaaggcaatg	gttgaacaa	cgtttctcac	tccaagagaa	ggacaaaacg	agtattcgat		780
gtcacttggt	cagaaagaag	ttctattggg	tagaacagga	ttgctgggtt	gtttgaggat		840
atcggctgcc	gggctgcgcc	tcatcaacaa	aatcgggtct	gagctgccat	caagcgcgcg		900
cccgagaagg	gcttctttaa	cgcataatca	aggagaattc	tgtcatggca	aagaaagtaa		960
aaaggcaatcg	ggtgcagggt	tccttgaatg	caccgagcat	aaggagagtg	gtatgccggg		1020
tattttctcgt	acatcaccac	caagaataga	aaaaatacga	ctcagcgtct	ggaactcaga		1080
agtacaaccc	cactctgaga	cgtatgaccc	ttcataagga	aatcaaaaaat	aaagaggaga		1140
tcagacaatg	gcaaaaaaat	cggttgcaac	atttaaaaag	gtgatggccg	tacctactcc		1200
aaggtaatca	agatgggtcaa	gtctctaaga	cgggtgccta	taccttccag	gaagaaatgg		1260
tcccgaacga	agcttaaaag	acttctttaa	gtaaggt				1297

(2) INFORMATION FOR SEQ ID NO:817

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 532 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...532

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:817

gtccatttgc	attggcctcg	gtaacaaaag	ctccgttggt	gtctttcacg	tattcagacc	60
ccactcctgt	gcttcgtcgt	atttgttgct	ggccagggaa	gaccggcttg	gagctggaag	120
gacttgtatg	cgaccttacc	ttccagatga	gaccgaatac	tttggctccg	ctaccgttga	180
tacgcgtgta	gcgtttatgc	catcgtgctg	atcaggctgc	tcctcgttgg	tgaatacatc	240
cagcaacgag	tatagaagcc	ttccacaagg	aagttggtct	ggacgttacc	gaaagatgat	300
acatatcggc	actcaaaactg	aatgcatgag	aaatttcagg	cttaggttcg	gatcgttgaa	360
tactttctgt	gcctcaccgg	ctacaacccc	tagtgcaagt	cttcacgcga	tacctgcggt	420
gcgcggaacc	cttttgcata	tttagcgcg	aagttgatgt	cccggattca	cgtttgaaac	480
gcattgtggt	cgaggactca	gaatcatatc	cttgacttcg	ctatgcttgt	cc	532

(2) INFORMATION FOR SEQ ID NO:818

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2065 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2065

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:818

ggactgactc	atcgttatcc	gggatcgggtg	tattgttcct	tatcacgggc	caaatgttcg	60
atgtactgtc	gtcattgtac	ttcgccgtcg	cttcgcagac	agaaagatgc	ttcttctcct	120
tctgagcgca	tcgatcgatg	cattgacata	tagccaatac	accgacagtc	cgcgatgttt	180
tgctatcggg	aggcgagccc	tccttgtcag	cgacgaacgc	ttggaataca	tattgaagcg	240
tctgccgaaa	tacctcatgt	ggagattgtt	cgtataggaa	gccgtacgcc	ggtatccttc	300
ctcagcgtat	aacgcctcaa	ttggtggata	tgctcaaaaa	atacatccgg	tgtggctgaa	360
cactcacttc	aaccacccga	atgaagttac	cgagaagcag	tagaggcttg	tgaaagaatg	420
gccaatgccg	gtattccgtt	ggtaaccaa	cggttttatt	gcgtgggaatc	aatgattgta	480
cacatgtgat	aagagattgg	tacatttgct	ggtaaagatg	cgtgtgcgtc	cttactataa	540
tatgtatgcg	atctttcgct	tggaaatagg	catttccgca	cgccggtact	aaaggaatcg	600
aaattatcga	aaatttgccg	ggacacacct	cgggctagct	gttcctacct	ttgtggtaga	660
tgctccgggg	gggtggtggt	agatactgta	atgccgaact	atgttgatc	tcagtcccca	720
cgacatgtgg	ttcttgcaat	tatgaagggt	ttatcacaa	ctatacggag	ccggagaatt	780
atcagaggag	tgtgattgtg	aggactgtcg	agccggtaag	cataaaggag	gtgagctgca	840
ctttccggag	gtcagcagtt	ggctatcgag	ccttccgact	tactcgcaaa	aaacgcaagt	900
ttgataagaa	ctgattgaat	gaaaataagc	tcctcccctt	tgcaaagcca	ttggggagag	960
agtttgctta	aagagagaaa	agagaaaaaa	ttgccttttg	tagaaaaaat	tatgcagagc	1020
cggagcatac	cattttcggg	atggagaaga	acaccggcaa	aacagaaacg	ctcaactaat	1080
tatcaggcga	ctcgatgcct	atcggcatag	ggttgccctt	acttctaagg	catagatggt	1140
gaaaagagtg	accagggttac	tcagacggcc	aagccgaaat	agtggtagct	aaagggatga	1200
tatttggttac	ctccgagctg	catttctaca	aaaagaactg	attgcagaga	ttattgatgt	1260
cagcgaaagt	cggatgcgct	gggacggctc	atcacggcct	gctctttgga	acccggtaaa	1320
atgtgtcttc	agggccttcc	acgacaggag	ggtaagaaa	aatgataact	acctatcgaa	1380
ctccggagtg	caaacgacta	ttgtagatgg	agctctttct	ccaagtgtct	ggcatctcct	1440
gtcggttacc	atgctatgat	tttagctacc	gagctgcttt	gtccatcaat	atacctcagt	1500
tgggtccgtaa	aacggctgcg	tgtatcaatt	gatctcttta	cccacagtgg	aatccgaatt	1560
ggcagagaat	tagatcccat	cgaacaaggc	atatggggga	tagacgaatc	gggtaacttc	1620
acgacttagg	gattcggttcg	gcactgctgt	tgaatgcata	taacagaatg	acctaactcg	1680
cttcggcaac	agaatttatg	tgtccggggc	cgttatgata	acttattgga	acagcttcgc	1740
ctctctgatg	ataaaatctg	tctctcatca	gagattttac	acgtatgttt	gctttgccgg	1800
aagcagtaga	tcgtttctac	agagcaaaca	tgagatcaaa	tctctgtatg	gaggtaagct	1860
atggcccgtg	acaatcaatc	cggtagcacc	cagcgggtac	aaactgaaat	cgaagtgtcg	1920
cgcagagaga	tggaaaaagc	cctcgggtatt	ccggtctacg	tgtaagaggg	ttaaacacgc	1980
ttgaatgttg	atgaaactac	cgggaacagt	aaatagcatt	agtggccttt	ccctatgtaa	2040
taaaatgagt	tgggccatca	ttcat				2065

(2) INFORMATION FOR SEQ ID NO:819

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 564 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...564

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:819

atccccagcg	catcagccgg	atcgatgttg	ggatcacgta	taatatcttg	agatgccact	60
gggcattatc	gatccaattc	ttcaaaaaca	aataatgccg	atcgtttgag	gccgatatgg	120
attggtgcac	ggtgctgcta	cgctgctgtg	acgttatagg	cctgaatagc	ctcgccgaaa	180
atcctattgc	acaactgctg	atagtcataa	ttattattgc	cgcttaattt	gtcaaaaatta	240
taatgtatgc	ggacaaagat	atataaaaaa	ccgattggcg	aactctgaga	attagtcctc	300
caatcgggtt	tgtaaattgc	taaaaagcaa	caataatttt	aatagtcttt	tttgactctc	360
ttttttattg	cttatcagtt	gccttttcgt	gctcttggcg	tgcgggcaat	ttcctgcttc	420
agctttgcct	ttgccttcgc	agatttgtgg	ccgtgcttgc	tcttgcactc	gcctttttct	480
gacttgtggc	gtcacttttt	ttgcagtcct	tggatttgtc	cttgctacaa	tctttgcgtg	540
gcataccttg	ccttatcctt	acag				564

(2) INFORMATION FOR SEQ ID NO:820

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 426 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...426

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:820

tagaggatcc	ccgcttatgg	gacgaatgat	gggtagtata	atcaagggga	tccctccaag	60
atgcgtcccg	tggcagatga	gttggccgct	ctcggacggt	cagccagatc	gggttcctta	120
cttattgttt	gcggctcttt	cgcgagtgtg	tataagtaga	gtaggggttg	caaaactgaa	180
ctacctctct	cccgagaaga	atccttcgtc	gatatgctca	gtggaggcat	tacgggacag	240
aacatcgacc	ggtgatggag	gaggtggagc	tggctatccg	tcatattcgt	cagatggaaa	300
cggtcggatg	atTTTTTtgc	atctcctcct	ccgccttacg	gccctcttgc	ccctgctctt	360
cgtgccaaag	gccttaaata	agcaaccctg	tcttccccct	ttatacgggc	ttgtacatag	420
agggag						426

(2) INFORMATION FOR SEQ ID NO:821

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 582 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...582

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:821

gatggagtcg	gctcaagcca	aactctattg	cgccgaaacg	gctatggatt	gactacgaaa	60
gcggttcagt	tccacggagg	atatggctat	actcgtgata	tccggtagag	cgatatgatgc	120
gcgatgctaa	gactcactgag	atztatgagg	taccagcgaa	gttcaacgct	tggtaatcgc	180
atccaactta	ttaaaaaatc	aagcattaga	ctatgaatat	cgttgtttgt	atcaaacagg	240
taccataact	accgaaatca	aattggatcc	tgtaaaaggc	acgctcattc	gtgagggtgtg	300
cccagtatca	tgaaccccgga	tgacaaggga	gctttggaac	aggtcttcgc	ttcaaggaca	360
cacacaatgc	tcacgtaact	gtgatcacca	tggaccgnca	caggcagaag	ctatcctgcg	420
cgaagcatat	gccatgggtg	cgatcatgcc	atccttgta	gcgatcgtaa	gttcgggtgga	480
gccgacacat	ggccacaagt	tacacactct	cttcaagctt	tgagaaaagat	cgaccacgac	540
tgattatcgc	cggcgtcaag	ctattcgacg	gtgatacggt	tc		582

(2) INFORMATION FOR SEQ ID NO:822

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 549 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...549

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:822

ggacgtattc	cgctcaatga	aacggatcgc	tcgccccaaag	cgagtgtaga	ttttccatgc	60
gtgggactcc	tacggatata	gagaagctgc	agcgcaactt	atggaaatgg	cttctcagct	120
caatatggat	atttcgttcc	agcgggaagc	atgttcgcgc	gcatgcgctc	tctcatttgc	180

ttcgatatgg	actctacctg	attcagacag	aggtcataga	cgaactggct	atcagagccg	240
gagtagcgat	cgggtaaaag	ccattactga	aagtgccatg	agaggcgaaa	tcgatttacc	300
gaaagcttcc	gccagcgagt	ggctctgctg	aaaggacttg	atgatctgtg	atgcaggaga	360
ttgccgaaag	tcttcctatt	accgaagggtg	tgagcgggcta	atgaagatcc	tcaagatggg	420
aggcttcaag	atcgctatcc	ttcggggggga	ttcatgtact	tcggcaacta	tctagccaag	480
aagttcggaa	cgactatgtc	tatgccaatg	aattggaagt	aaaagacggt	aagctcacgg	540
ccgatatgt						549

(2) INFORMATION FOR SEQ ID NO:823

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 524 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...524

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:823

gggcttcctc	ttttcgtgaa	acccaatgtg	ggagggttcca	gcatcgggat	accaaggtgg	60
tggaagctgc	acagctcctt	cgggcaatag	aacaagcctc	tcggaaggcg	aagaggtaat	120
gatagagcgt	ctgatatgtg	gtaccgagtt	acctgcgggg	cattcctcag	aaaaaaagaa	180
gtggctcgcat	tgcctgtaca	gaagttgtcg	cacataatga	gtttttcgac	ttcgatgcca	240
aatacacgga	gctgtagagg	aaatcacacc	ggcgagaatc	agcgatgaag	ccaccgattg	300
atacagacca	tgactgcgcg	catatacgag	cttctcaacg	ctcgggcata	atacgtgtgg	360
actatattca	tcgaagcgga	tggtattccc	acctgctgga	agtgaacacg	acaccgggca	420
tgaccacctac	gagctttatn	cccagcaggt	tcgagcagcc	cggaatggat	atgaaagaag	480
gtgctttgca	tattcattcg	ggatggactt	gaatgagacc	caat		524

(2) INFORMATION FOR SEQ ID NO:824

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1165 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...1165

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:824

ggaagttggt	cagaactcca	ctgataatgg	agtccatctc	tgccaattcg	attcgtgttg	60
gctgtttact	gctgcaatag	agtcatactg	catttttact	ctttataggc	actggagttt	120
tttccacatg	ataccaaggc	aagagttgcg	ctgtggcgat	aaacagtttc	ttcttcatgt	180
tcgtaatact	tttattgctg	gacacttcat	tcattcttaa	cttattgctt	ctcttctttt	240
ctcccttcgg	ggcggctcca	cccacgatga	gaacgaattc	tccccttgga	gggtgttttc	300
gaagtgagcc	agtaattccg	cgagtgttcc	gcggatcacc	tctcgtggag	tttgctcagc	360
tcccggcatg	cagcagctgg	tcgatcgaga	ccaaagtctc	cacaaattgg	gtcagagtcc	420
tgagcaccgg	atggggcgac	tataaaatat	catcgtccgg	agctcttcgg	ccaattcttt	480
cattcgagtt	ggcggccttt	cttgacaggc	agaaaacctt	cgaaaacaaa	cctgtcggcg	540
ggagtccgct	tgctaccaa	gccggaatca	atgctgtggg	tccgggcaac	attctaccac	600
tacacccaac	tcggcacatg	ctctgacaag	caaaaaacgg	ggtcgctgat	cccgggagtt	660
ccggcgtcgg	agatcaaagc	tatgcgtcac	ctccggatat	ccgttcggcc	aatgacttgg	720
ccgtacgatg	ttcgtgaatt	tatgatggct	ctggagcgga	cagtgaatgt	cgtaatgggt	780
gagcatacac	tgctggtacg	cgtgtcctct	gccaaaatca	ggctctgttc	gcgagtacct	840
tcaaggctct	caaggtaata	tcctccaaat	tgccgatagg	agcggcacga	ctgtcaaacg	900
tccttccatc	gcaaatccta	cgggttcagtt	cttctacgga	agaaatccga	cactacttcc	960
gcaaagtcat	ttaccaccgg	tcctctgcct	cccattgcat	ccgtgatgc	aaatagatca	1020
tagcttcagc	gctgacgaca	gcaatccgag	atgggcagag	atgtctcgca	taagcttgca	1080
tcgtcttgaa	acaactcccg	tctaaagcga	aaaaaatcca	acgtagaact	atcttctgca	1140
aatcgaagcc	tgcaggagag	gtctc				1165

(2) INFORMATION FOR SEQ ID NO:825

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1008 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1008

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:825

gatctatctt	gatgtccaag	tggagttctc	ccgcgtttgt	tggcctgagg	atcacctctg	60
ggcatatttt	tccggcatcg	gaatagagtg	cttcggaggc	tggtcatgca	ggtcttcgcc	120
gaagttgcgg	cgaaactcgt	ccactctttt	tttcagcttc	tctgccggag	cttcgttctc	180
ggcatagagg	atattcccac	ccgtcgatct	ccctccgtaa	ggcgaagggc	caaccatctg	240
ctattggcgt	atcgggatga	aagagccgga	tggattcggc	caaagaatcg	atcccgatc	300
tatttcagta	ccgatacttg	tcagtcgatg	cggagtacag	cgaatatccc	ttgggccacc	360
tcggacaggg	ccgacaggag	atcggaatg	cctctcccga	acgtgcactg	gctcctacga	420
cagggatgcc	cagcctgcgc	ggagacctct	caggtcgatc	tctacgccgt	tccgttcggc	480
ttcgtccatt	gattggcaca	taggacggca	cgatccgtta	tttcgaggat	ttgcaggata	540
gattcatatt	ccgtccagtt	cgggtagcat	ctgccacgat	gagggtaaat	cgggcttgcc	600
gaagagaatg	aagtcgcgag	cgatctcctc	atcctcgagg	tagaaaggag	agaatagggt	660
cccgggaagat	ccactatctt	gtatgagagc	cggcatacga	gaatgcacct	tcggctttct	720
ctaccgtttt	cccggccagt	tgcccgtatg	ttgtttgagc	cdggtcaggg	cattgaatac	780

cgatatcttgc	ctgtattggg	attgccggca	agggcgatgg	tgaagtcgta	tcgtccgcat	840
cggtgcccat	gcgccggagt	ttatttccgc	tgtgtgcggg	gcacccgttg	caggctgaag	900
aagtggtagc	actctttttc	atcattcgat	tgaagttggt	ctgaacgta	ggtcttttac	960
ctggatataa	ggatataacg	gcttgatcgc	gtcgcaaggc	gatggccg		1008

(2) INFORMATION FOR SEQ ID NO:826

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 499 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...499

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:826

cggcacggtt	ctgtagcgac	aggtacgacc	atacggctac	ggggatagtt	tggttttgca	60
ccaaattctc	ttttaatcat	tcgactgacc	tctcgataat	gaggagaagc	catttcatga	120
accgcacata	tccgaaccgg	ctttcaggag	taagatatac	ggtgaagtat	atggcttctt	180
gctcaatgaa	atccaatttg	ttacaaatat	actgacagac	agtgattcta	ccaaagcatc	240
cattcatata	tttccggctg	tgagtgcac	acaataaaca	aaggccggtt	agagtcgaag	300
ccggatattg	gagcggatgt	tagtagtttt	gcgctccggt	agaataactga	atataaggat	360
gtttcaagat	ccaagaaacg	atcgtcaagc	ccgacctctt	cgacaagtat	tttgtctgcg	420
attatgctac	gtgtcagggg	attgctgcgt	ggaaggagaa	agcggtgctc	ctctcgaagc	480
gggtgaaagc	gattttgct					499

(2) INFORMATION FOR SEQ ID NO:827

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 539 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...539

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:827

ggcaatgaca	atttgcaaac	gataacagtg	cgtcgcaata	tggccaaatc	agcttggcca	60
tgaataccgc	caagctgaca	gaggtggagt	actctcttat	aacacctttg	acaaaggcac	120
cttggtcca	ttcgaccct	ccgaaacaat	ccagacttag	cattcaaaaa	agattttgtg	180
accgagccgg	ccggagtgat	tttgataatc	agaaagggtt	caaacctgtc	ggtcctgaga	240
atttctttat	ggtttcgagc	gtaaaaattc	agttattgct	gcggggagaac	aaattcttgc	300
ctgatcataa	aaggcaaata	tcaaggtagt	aatgcctttt	cttctacaag	atagactttg	360
tccatcagga	cgacaagacc	aagcgttacg	actcatacgc	aatcacttct	ataagggtgac	420
gatcaatgat	gtatttaaag	cggattttcc	acaatcgagg	cggctctttc	aggtgctgct	480
gcgaacaaca	agctctctcc	gaggagctgc	aaatgtaccc	cgtctttctc	tgacggaaa	539

(2) INFORMATION FOR SEQ ID NO:828

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 529 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...529

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:828

gggttcaaag	agatattggt	accggccgat	aattttccggc	aggaggatgc	ggccgcttcg	60
gtattcggct	cgtgccggtc	agaaaagggtg	aggaagcctc	cgccatctgt	tctcgaaagg	120
aagagaatag	aaagaacgga	gaaaacacta	tcaggagaga	gctacaattt	ccaaaaacat	180
acaagtaata	atgaaaagaa	caaactattc	cgtatcggga	tacttgccat	cgttgccctc	240
ttgctacagg	atgcaagggg	agccgatacg	cattttatca	ccgatgcaga	cttcgcaaac	300
aggtgcaaga	agatctgaga	gtaaaacgcg	aagctctatc	cgaggcaatc	tcttcgaagt	360
gctggagcgc	gattcgctcc	gtaccgaaga	gccgaagcac	tggagttcct	gtatgcctac	420
atgacttctg	ccggacatcg	tgactactcg	ggcgacttct	acttgacagaa	tgtacgcgag	480
agcttccgcg	aagaagaaga	atgtcgtggg	gtaaggaagt	gcccgactg		529

(2) INFORMATION FOR SEQ ID NO:829

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 433 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...433

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:829

cggagcgcag	ccgatagccc	gcttcaccca	gaaactggat	cagcccaatc	cgtaaccttt	60
gtaggcaaag	gcaaattgga	tgagatacgc	gcctatgtca	ggagaacgag	atcggcatgg	120
tggtgttcga	cgacgaactg	tcgcccagca	gctgcgcaac	atcgaaaaag	aacttcagac	180
caagatcctc	gatcgtcggg	tcttatcctc	gatatatctg	cccgacgggc	acagacggct	240
catgcaaaac	gcaggtagaa	ctggcgcagt	accagtatat	gctgcctcga	ctgaggggct	300
atggacccac	ctcgaaaggc	agcgaggcgg	tgctggcatg	agagtccggg	agaaaagcag	360
ttggagacag	accgccgtat	cgtctttgga	caaatagctc	ggctcaaaga	agaacttaag	420
ggacatagac	aag					433

(2) INFORMATION FOR SEQ ID NO:830

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2096 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...2096

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:830

tccgaactta	tggtcttgag	gtaactccac	ttgtcgccca	cagtgcggag	agtcttctct	60
ttaccatcga	aaacgatggt	cagaggttcg	gccagagggt	cttctcatcc	accatcaggg	120
taatgagtac	atagtccttt	tccagcagct	ctttactgta	ggatcgatcc	aaacggcatt	180
ctccatcttt	ctacagtcac	gcagccgtga	cctgagaagt	cgaggaggac	aggtttgttc	240
tcttgcgagc	aaaagccata	ccggcctcat	aatccgtaaa	gtgagcatga	acttgccact	300
atagagattg	aaatcctgcg	tgtggagcgg	cggagcaaaa	gcattacagc	cttgagcgga	360
gccccccaca	aaccggggat	catatataca	gcaaagccaa	agagacagta	gccatcataa	420
agcgcggcac	agagagatgt	gccattcgct	atcatggctg	aaacggatcc	atcccaagag	480
atagcaaccg	gcagagcgaa	aatgacaatc	cagagagcga	ggaaagtctc	acgatcgaga	540
tatgccagcc	atatgccaa	tctgccacgg	agaggaactt	gagagcaaa	ccaattcgag	600
gaagccgagt	accaccttca	ccatattcaa	ccatcctcgc	tcttaggcat	accctgcaac	660
cagctgggga	agaccgcaaa	aagagtaagg	gcaaagccaa	tgaagtggca	aagccaagca	720
tgcccatggc	cggagcagtt	tgagccggc	tgtagcagcc	tgtaccaaga	gcgtaccgat	780
aatagaccgg	tacaagagaa	ggacaccaa	gccagcgtaa	aggccataaa	gaaatactga	840
gcaaaccggt	cgtagagtcc	gccttgctgt	ccagcttggt	agccaagatg	acggcaacac	900
cagctcgaat	gctccgaaga	aagagatagc	gagactacca	acagcaggaa	gaatatgatg	960
ttgaagaccg	cattcgtggc	aaactgttca	gagaattgac	accgaaaata	cccgtaatga	1020
gcaagccgac	actacgtaga	taacgatgat	ggaagctccg	taggtaaaag	catctctccg	1080
gctttcttct	tgtccttatt	acgcttaagg	aagaagctca	ccgtcatggg	atcataggcc	1140
atagcaagg	agtaagcaat	gcaacaaaa	cgtagagaaa	ccatagagga	aaatcttcca	1200
cggagcactc	tctgcctgct	tgagctatca	tcaccgtatg	cacgcaactc	gctaacaacc	1260
ggtgtccaca	agtcgccttg	gacgaaagag	cttcggcagc	atcgggtctg	gatgtagtat	1320

ccgtgcggtc	tcggcagcaa	ccgcttcagc	agcttcagct	tcggtatcag	gactgcagcc	1380
ttgctcttga	tcacatgaagc	atcgaaagag	aagtcgctcg	ttcgggtggc	agacagtttt	1440
catcattaca	agccatgaag	cgaacaccac	tttगतagag	aatttggcag	ggcccgtcac	1500
ctgaattttc	tgacggaaaa	gacagtcttc	tcgtaccatc	tcagatccat	ttcgaactgc	1560
ttgtcgtacg	gttgacagga	gctttgtcag	gaatagcctt	accgacaagt	ttggctccgt	1620
cattttatcg	aacaggaatt	ctgtggatgt	agggccatcc	tcgggcgatt	ttggtcataa	1680
aggtgccatc	cgggtttgat	cgtggccgta	aacacaatgt	tttctcaggc	gtgtcgctat	1740
cctgaagaga	ggttttccaa	acgatacatc	cttgataatc	tgagcagatg	ccccgatggg	1800
caacatagag	agaacagtag	ggctaaagct	accgtccatt	tgctgtttct	gtggttcctg	1860
ttgtcattat	tatatgttgg	attattaaaa	ttagtcagct	acctatttgg	acgttttttt	1920
gtctttgata	ttgtttggtc	tgctgcagtg	ccttcttcga	atgtatcagg	cggcgaaaga	1980
gtttgggcaa	aggcaactta	tattcctgct	atctcccggt	tcaggatgac	ggaatacgaa	2040
tcgcgttccc	tgtagggcag	acagtccaga	tggcggaaag	aactaccctg	cctcaa	2096

(2) INFORMATION FOR SEQ ID NO:831

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 650 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...650

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:831

tagaggatcc	cctgtagatt	tctcgtcatt	gtatagctgt	ctgaaaggga	taccgctgtc	60
atgttctgtg	aagtggctaa	ttctccggcc	aaagtaataa	gcagtttaca	aaggatacca	120
aaggagaagg	aaagccttgg	ctaaaagtgc	atacgtgcag	gaaagcttct	acattgggag	180
ggaaaatctc	gatgcttgg	ttcgatcaag	agcaaaaacg	aactcatcgc	agatgttgtg	240
gcattctgca	gtctccggcc	aagaacgtta	ttgcatcttt	gcagtcagca	ggtcaacgat	300
ccatgggtgtg	ttgaagacct	tggagaagaa	ataattcaac	agttaattga	aaacttttaa	360
tactcaaaaa	taaaatggca	gacattaaag	ctttgctgaa	caactgggta	acttgacagt	420
aaaagaagtt	agcgaactcg	cactatcctg	aaagaagaat	atggcattga	gccggcagct	480
gctgctgttg	tgtagccgct	gctcctgttg	ctgccggtgc	tgcagctgaa	gaggagaaac	540
ttcttttcgac	gtagttctta	agagtgtctg	agctgcaaaa	ttgcaggtgt	gaaagctgta	600
aagaacaatg	cggctcttggc	ctgaaagaag	caaaggactc	gtggacgcag		650

(2) INFORMATION FOR SEQ ID NO:832

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1530 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1530

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:832

gttctttcca	agaagaatta	tcctccaggt	cagcatggca	ataaccgtct	cgtaagacga	60
gcgagtatgg	cctccagctt	cgtgaaaagc	aaaaagcaaa	tatacttacg	gtgtattgga	120
gaagcaattc	cgtcatttgt	tccatcggca	cagcgcgcaa	agggtgtaac	gggtgagttg	180
cttattcagt	tcttgagca	cgtttgata	atgtggtgtt	ccgtttgggg	attgccccga	240
cgcgctctgt	gcacgtcaat	tggtttccca	tcgtcatatt	accgtagatg	gcaggttgtc	300
aacattccct	cttattctgt	taagcccggg	caggtgatcg	gcgtcgtgag	cgttctaagt	360
ccttagaggt	tattgctgat	gctttgacag	gttcaatcac	agcaaatatc	cttggatgga	420
gtgggacag	tcgtcattgt	cggtaagctg	ctgcatatgc	cggatcgtac	ggacatccct	480
gaaaatatta	ggaacagctg	atcgttgaat	tgtattcgaa	ataatccata	gatcccatgc	540
aatattagca	tttcagaaac	ccgaaaatgt	attgatgatg	gagacgtcga	ctcgatcgcc	600
aagttcgagt	tcaaaccctt	ggagcccggg	tatggtatac	cattggcaat	gcgcttcgtc	660
gaatactctt	gtcttcgctt	gaaggtttgc	gattactgca	atcaagattg	aagggtgtaga	720
gcatgaattt	gctacattcc	gggtgtattg	gaggacgtta	ctaataattat	cctcaatctc	780
aaacagttcg	ttttaagcag	attgttccta	atgccgatgt	agagaaaagct	acattgttat	840
ctctaattcg	gaggtgttcc	gtgccgggtga	tttgaatgca	cactttcaaa	ctttgaagtg	900
ttgaattcga	atcttgtcat	ttgccacctc	gtaagtcggc	tacgcttact	atggagtttt	960
ccataaataa	ggggcgtggc	atgtgtcggc	agaagagaaat	cgcgagagc	ataatgagct	1020
ttccacgatg	cgatcgactc	aatctatacg	cctattcgga	atgtcaagta	tgcggtagga	1080
atttccgcgt	agaacagaag	actgattacg	aaaagctcct	gatggaatga	ccacagatgg	1140
ttcgatccgt	cctgtagatg	ctcttcgtga	agcagccaaa	tcttgatata	ccacttctct	1200
ctgtttgcag	agaataagat	agcgaagagt	atgtggatat	agtcgatact	gatgagttcg	1260
atgaagattc	tctgatatgc	gtcaactatt	gaagtcaaag	ctttcagggtc	ttgacctgtc	1320
tgctcgtgcc	tcaattgtct	gaatgcagcc	ggagtagata	cgttgggcga	ttagtgaagtc	1380
tgtcacggag	cgatctgatg	aagattcgca	acttcggaaa	gagtccttga	ctgagcttga	1440
cgaactgctg	gcaacgctga	atttgtcgtt	gggatggata	tcagtaagta	taaattagat	1500
aaagactaag	aacgatgagc	atataggaaa				1530

(2) INFORMATION FOR SEQ ID NO:833

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 623 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...623

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:833

ggccagttcg	atattgcttc	ggctctgtcat	gctctctgcg	acaagctgac	tatcggcatc	60
cgcatatcta	tggcaatgta	caggtggaga	atgctgccaa	gtggtagca	actgggagca	120
actcaaaactc	cgcgaaaagg	atgggaaaag	tccgtcctct	ccggcgtgcc	gaagtctctc	180
cctgcttttgg	tgaagactat	cggatgcagg	agaaagccgc	aggcgtaggt	ttcgactggg	240
agcaaggggag	caggtatggc	cgaaagttaga	agaagagctg	aacgaagtcc	gagggctatt	300
gtcagtgaag	atcccgatgc	catggaagca	gagttcggcg	actgctcttc	gccgtgggtga	360
atgccgctcg	tctctacggt	atcaatccgg	atatgctctc	gaacgtacca	atagaaaatt	420
cgacagccgt	ttctcctatg	tgagcagcgt	gccaaacagc	agggcaaagc	tctcagagat	480
atgaccctct	ggagatggat	gcgctgtgga	atgaggcaaa	acagaaagga	ctctgacctg	540
ttccaagcgg	aaaaagctat	ctttgtaagc	acgatttagc	attattacat	aatgaacgaa	600
gacattaaaa	agaatacctc	ggc				623

(2) INFORMATION FOR SEQ ID NO:834

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 753 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...753

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:834

agcggggcca	aaccttttct	ccacccttgc	caaaaaccag	cttccctttt	ctaagttttc	60
tattatagca	gaaataaatg	cattattttc	cagctccaag	attattccgg	gtataatggg	120
tgttgctttt	attgttttca	tataagatcg	accactctat	ctgcggataa	tttgctctta	180
gcgtaatctg	taaattgagc	ttacaccaac	cttttatcct	gtaggctgca	atggagggaac	240
aattttgagt	ctgcactcag	gattatattg	attgattgct	ttgcaaagat	tttcgtttcca	300
agaacatttg	attgataata	ttctttcttt	gttgttcgtg	aaattgtgcc	gccaagtga	360
caattacatc	ttgtcctttt	acaaaatcct	cggagattcc	aagttcgata	aatctccttt	420
gataactttg	actttatctt	cattgtttct	atattgctac	tttcccttgt	caaacagggt	480
attgggtgtg	tgtttttgac	aataattcaa	cgagtctgtt	tccaagaaaa	cctgttcccc	540
ggttatgcc	attcttatca	tttttatatc	attcataaaa	tatttcttat	tattatcgnt	600
ctctccaaag	agtgtagtag	gcgtacngat	atccatgcgc	angaaagcaa	gtatgggttt	660
ttcggcctga	ttgggaatcg	gagactaact	aaaagaactt	tttctttttt	gtgttttcgt	720
ctgaaattcg	agaaagctct	aaagactacc	tat			753

(2) INFORMATION FOR SEQ ID NO:835

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1247 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1247

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:835

ggctccatca	agcgggagcac	cccaaagagg	ccactatcga	agctatacgg	aggcagaagg	60
ggcagcaaac	gaggcttcta	cacagggtgtt	ttcggttatt	cgacggtagc	agcttcgatt	120
cggctgtaat	gattcgctac	atcgaacgct	tcccgatggc	cattaccttt	ttcgcagtgg	180
cgnccggcatt	accatcacag	ccgctgtgac	gacgaatacc	gcgaaacaca	acaaaaggta	240
tatctccatt	ctgatcgaat	atgtgctata	tcgaaaccat	ccgcatcgaa	gacgcctgcc	300
ctatctgctt	gcgctccatc	aggaacgaat	gagccgcacg	tgcacgaaaa	gggctttccc	360
ctcccggaaa	taccttgcc	gacgaatcta	tgcctccgga	attgatgtgc	ggaatgacca	420
aatgtcgtat	tctatatggt	aggagggcat	ttcggacgtt	tccttttcac	cttatacacc	480
acgccaaata	cctccctgcg	tatcgtaacg	gctccagccg	atgttgacta	tcatttgaac	540
aggttgaccg	ttcgtctctc	gaagctcttc	tcaagcaaaa	aggagaagcg	atgaaattat	600
tatcctgcgc	aacggactcc	tgacagacac	atcctaccca	acctccttct	acatatcgga	660
ggagaacttc	tcacaccgcg	cgtcccctct	tagaaggcgt	acaacgccgg	tatctgctcc	720
aatccgggtca	aatacaccgg	cagacctgca	aatcgaagac	ctcaaaaaag	cagaagaaat	780
actgtgatca	atgccatgct	ccccttgggg	cataccattc	gtatacacc	atccagatta	840
ttttttgatt	atcatcttcg	gctatcggat	cgagttatcc	gaagaaggct	tagaagaggt	900
aggagatatt	gcagatagcc	ccgatgggat	gccggacgtt	cgttcggctt	gcggatcgga	960
caggatatgt	gagatgacac	gggcgttttg	ccataggcta	taccgtcctt	tcttttcac	1020
aggtcgccaa	caaccgcagc	tctgtcatca	ggcgggtgggt	attctgcac	ggaatcgaac	1080
gtacagagag	gaacgcacct	ccacgccttc	tctattacga	taggcatggg	caaataggcc	1140
agctgatagt	cgagctgctc	tttctggatg	gtacgaatct	tatacgaatg	cgtcagcacc	1200
attcgattaa	gcagccgaaa	gcgaagtcca	aaatccaatt	tggatcc		1247

(2) INFORMATION FOR SEQ ID NO:836

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1367 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1367

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:836

ccggcaccgc	cggtgatgag	aatatgacgt	cggaagttca	tcgttcttca	tgttttagca	60
gattcagaca	cgcagccaaa	gaatcctgcc	agtgagggtg	ctgatgtcga	aagtgttttt	120
aataagcgtc	ttatccaaga	cggaatatgc	ggccgtctta	cttttgtcgg	atattcctcg	180

ctatggcaag	ggctgacctg	catgctgtat	gaccactcat	tcgggcaatg	gccactgcaa	240
agtcgaccag	gagcatacac	cttcgtttgct	aaagtgatac	agccccgtct	taacggcagt	300
tgtccatatag	ccagacggtg	tatgaaagca	gccaagtccg	cagataggta	ggagtaccga	360
cctgatcgaa	gactacgttt	aatgtatcgc	gtcagctgtc	agccgaagca	tcgttttcac	420
aaaattattg	ccgaacgatg	atacagccac	gatgtgcgca	gtatcatgta	tcggcagtcg	480
gctgccagca	agcctgttct	ccttttagct	tggtagcgcc	atacgcaccg	agaggagctt	540
cgggatgtct	tccctatagg	ggatattagc	cgtaccatca	aatacatatc	cgtagaaata	600
tgtatcagca	gggcatcata	cttcgcagca	gccgctgcag	atgagccgca	gcttggtgat	660
tgactttctc	ggcagaggct	tcatcgcctc	agctttgtcc	acagctgtat	atgcggcaca	720
gttgataatg	atcccatgct	atattcctcc	ataaaacgga	ggacagcatc	tttatctcta	780
atatcagttc	cgctaagtcg	gtgaaaacaa	aacggctgtc	agccgaagcc	aacaccgaag	840
ttcactaccc	aactgaccat	cggctccggt	taccagtatt	cgttcattcg	tataagtctt	900
gattgtaggg	gaagagattc	cggaaaatcct	cctcgatatc	aattccgtcc	atgacggatt	960
ggcctgatct	ttagctgaga	gataatgtcc	tctgcaggga	ttttccactc	aatatctaag	1020
ttcggatcat	ccaggcaatg	gctccttcgc	tttgtaggagc	atagtagttg	tcgcatttta	1080
ctgaaatacg	acttcgtcac	ttagcacgac	aaaaccgtga	gcgaatcgcg	cgggataaac	1140
aactgtctga	agttcgtatc	ggaaaagctcc	actgctcata	tttgccgaaa	gtaggcgatc	1200
caaagcgaat	atccacggca	tagtcatcac	acaccacgt	actactcgta	ccagcttgct	1260
ctgggcatga	ggagtttctg	aaagtgaagc	cctcttagta	caccatatcg	ggatgccgat	1320
tcgtgtcttg	tacaaaatta	atgggcgaat	acccgtttct	atctctt		1367

(2) INFORMATION FOR SEQ ID NO:837

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 855 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...855

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:837

tcagtccatg	aagaataggc	agcgggatcca	ctccgacaaa	cgaacggcat	catcttgtaa	60
gatgggacca	tccacgtagt	cgttcgggtt	cggccgatag	taacgatcag	ctttttctgc	120
tcctcggcac	aagcctccat	cacataggca	gcgtactgat	ataagtaaag	aagcgagtcc	180
cgacatcctg	catatcaata	gcagcacatc	gacgtcggcc	aacattcgag	gagtaggttt	240
cttgttttgc	cgtagagcga	aacgataggg	attcccgtcc	tgacatcccg	ttcaccttga	300
ccgttgcccc	ggcatcggca	tctccacgga	agccgtgttc	aggcctaaga	tcttgacgac	360
attgactccc	tgccgaagca	gattgtcaag	aaatgttccc	gctccgtccc	caccacgctc	420
gtagcattag	ccaccagtgc	ccacgcttgt	ctctgagaag	aggcaggagc	agctctgtcc	480
tctctgcacc	acaactaccc	gtacctcctc	tcttggggtt	gcgaccgaaa	tctcctgctc	540
gaatgagcag	tctgactccc	gacttcctca	ctcctcgacg	aatgcgctcc	cctgcaactt	600
ggcaaccggg	ataggccgaa	aacgacatta	gcccgtcatg	caggctaata	cgatagaata	660
tttccggaaa	aagcgaggga	tcatttcctt	cgtttactcg	tcgatgatct	tccaagaaaag	720
ccttcaatcc	actatcgtaa	gagggtgctt	gagcagaccc	tttgatggcg	ttgagcgggc	780
aagtgcaca	tcggcaccgg	ctttcgaggc	actgaataat	gtgctgcgta	tgggggatgc	840
tggcagcaag	tacct					855

(2) INFORMATION FOR SEQ ID NO:838

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 687 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...687

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:838

gaagccaaca	actgttatgc	aagcaattcc	tgaatacgat	gataccggtg	actatccaaa	60
agtcaaagta	ttgcctgcga	gtaaactccc	aaacgaaact	ccggtttgcg	tcataactca	120
gacaagcaaa	gggattaaca	ttaaggtagg	actgttgatg	cagtcgatga	tgaaaaccta	180
aacggacgaa	taataggaat	ttttacccca	atgatactct	tggccccgaa	tcggaagaga	240
aactaaaagg	ttggggggtt	tactctccaa	agcctccgaa	gatttcgatc	ttcgcaaacc	300
aatgaaatat	ccatcgactt	aactgttttc	aaagatttgg	ctgttcaatc	accgaaaagc	360
attgtaattt	atacggtgag	acaatctcat	acgtgaaaaa	atgacactga	aaaagggaga	420
cttaatgacc	aagccatttt	taaaggcctc	tataaggtaa	aagaataaga	gcatggcaaa	480
gcgaataatc	cgaggatagg	agacgttttt	gaagtccaat	tagataattg	caagaagtat	540
ttcagtacat	cgcaaatgac	atgacacagc	tcaacagtag	cgtaatacta	cttttgtgga	600
agaatacccc	ttggactgtt	ctccgatctt	agaaaattta	cccgcgggta	agggtgattt	660
tatgcacata	cagtcctccg	atggggga				687

(2) INFORMATION FOR SEQ ID NO:839

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 789 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...789

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:839

aaccggctgc	catccggcgg	atcaactcga	caaagtcgga	tcpgattcga	gcatgacgac	60
ttccgttttc	ggatctccca	tacggcaatt	atattctaca	cataaggatc	tcctcctaca	120

ttcatcagtc	ccacgaagat	gaatccggat	aatcgattcc	ttcggctatc	agtcccgata	180
tcgtagggccg	gataatcgct	cttccacctt	ccgcatgaat	gcttcatcgg	cgaaagggtac	240
tggcgaacgc	tccccattcc	gccgggtattg	agcccgggtat	ctccatctcc	gattgcttat	300
aatcctttggc	gactggaagt	atgtgatagt	ctttgccatc	ggtgcaacaa	atacggagca	360
ttctatgcca	tcgagaaact	cttcgatcac	caacgacggc	ttgcagcacc	gaatttgcca	420
ccgagcatct	cagccaactc	cgtttggctt	cttctgcagt	cggagcaata	atcacccct	480
tgccggcggc	aaaccatcgg	ctttcagtac	ataaggagcc	tgcacgtat	ctatgaatgc	540
ttgcctgcat	ctgtttggtc	agccgtgaat	gtctgataag	cggcagtaga	atcccgtgtc	600
gtttcataaa	agacttgctg	aaatccttgc	ttccttcaac	cgtgcaccct	tggcatcggg	660
ccccacaatg	aggagatcgt	gcagtggctg	tgatttcgga	agtagtccac	tatgccacgt	720
acaaggggtt	cttcagcccc	actaccagca	ggtcgataga	actcgcgctg	taccacttcg	780
gcaacggca						789

(2) INFORMATION FOR SEQ ID NO:840

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1914 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1914

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:840

ggcggttttat	gaaagagtga	tttaatgccg	tttggtttat	tccggtcgca	aaatatgtgc	60
agcttttttca	tggcaaagaa	aaaatcatcg	aatgttttat	ggcttcatag	atacagacta	120
tatcaattca	ggctttcttt	ttctcagaag	gattcgcccc	aaaaaagtta	tcgatcggag	180
cagtataagc	atgaaactcc	ggcgaaaaaa	ggaaagaggg	ggaaaatcgc	tcgattggcc	240
gagggttttg	cggaaaaagt	gcctgtttct	ccgtattttt	gtcccgtttt	gaataaaaaat	300
cacacaaatg	atcttatgaa	acgaaccctt	gttttcttat	ttctgctgcc	gttttggtctc	360
ttcggggccga	ggcacagtct	gcacccgagc	aaccgagacg	aaggatttca	tcttctcgcc	420
ccaaaaggag	atggtgtacg	tgccatcggc	tatccggcag	gaatcggatt	gccctctctg	480
gataattata	cgtagaaggg	gcttcggctt	cttttgccgt	cggctacgaa	cggggcgtaa	540
acaactcgca	gaagggttct	tgctatccat	ctatgcggaa	ttggattggc	ggcattcaga	600
tctgtatctg	acaaaagatc	cctgcctttt	tctgatgttc	tgcgcagaat	cggtttcgat	660
ttttagccgg	agcaggcgctg	cacaagggtc	caaccggaat	atcgaactct	atgcaagagg	720
tgcaagtagg	gcgagttttt	cccggaaaaa	aacggttcat	catcgagaga	actaaagggc	780
ggattaacgt	tagccttagg	gtcggactga	gttgctcatt	gagagacaat	ttcccgtctt	840
tatcgatacc	gggacatccg	acatcgtgcg	cgccggcctt	gcttgatgtg	gtagcagaag	900
cagcgtagga	tttaccggaa	ggtatgaagc	cctactgacg	gtcgtttgtg	ctattattct	960
cctctccttg	cctctcggtg	gcagacgggtg	gtgccggaat	gggatgaata	catagcagag	1020
cagatagaac	aggtgcactc	ggggaggagc	agggagccga	atttctggaa	cgggtggatgt	1080
gcagaagcag	catccgctgg	acatcaatac	ccttaccggtg	gaggactgga	gcaattcccc	1140
tttctcaatg	agtttcagat	ccgccgtttc	ctgctcaccg	acatgctcat	cccagggggt	1200
tcgacagcat	ttgggtgctg	agtgaattgc	cggctgggac	agacgtacct	gtctgtctct	1260
gtggccgatg	ctgagggtgca	gaagcggagc	gagtcggctg	ccgcctcttt	tcgcgagatc	1320
ctgcttatgc	ccgtcacgat	gtatcgggtg	ataccgatgc	catcctccag	cacaggagggtg	1380
ctaccgtccg	gatagccggc	atccgtatcg	ggcgcatccg	tgggtggcgg	tttgcgctgg	1440
agctacgcta	tgggcaatcg	tttttcctta	gccttactgc	gtccaaagac	cggggagaac	1500

cggccttcga	taagcggcga	agggcttcga	cagctattcc	gcccacttct	tcattggaagg	1560
gaagggggtg	tgcgagccgt	ggcactcgga	gactatcgaa	tagggatggg	atacggctgc	1620
tcgtcaatca	ggcctctttc	atgggaatgg	cctacgccta	tcctcgggcg	gaaccacgct	1680
gcgacgtgcg	tttacctatg	ccgaggacaa	cttcagcgcg	gggccgctac	cgctcttgca	1740
caaggacgat	gggcactgac	ggcattttatt	cgcgccaggg	gatcgacgcc	accgtcaccg	1800
aagacggtgc	cataaagcca	tttaccacac	cgggctgcat	cgtaacgatc	cgagatcgcg	1860
cgcgaaacgc	tgccacgatg	acaccgaagc	acttncgtct	gctatacgac	gtcg	1914

(2) INFORMATION FOR SEQ ID NO:841

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 661 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...661

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:841

cgatgcgaaa	ggttttgccc	gtttcgcgat	tgactatggc	acgaaggagt	cgaaattatt	60
gaaggatttg	cttactccga	tatgctgctc	cacgatctgg	acgtgaccac	tcccctacta	120
tcttggtgta	tgagaatgag	cttgccgct	cattcatcaa	cttctccaga	tcattgccga	180
ggtaatcggc	cagcattatg	ccacttcggg	cgatacgctc	agtttcttgc	cggcagcagc	240
cgacagatga	agtccggcat	cttatagtcg	ggtatggctc	cggacacgaa	tacttcccga	300
acttttcagc	cttcgtatag	aaagcctttc	gcttatcggg	tttttcttat	aggcaatgac	360
cagaatcgta	gtatcgggga	aagtgccata	attgcttcga	gcaagtcgat	attgtccact	420
aactgcgcct	cccgaacgac	gtcaactgcc	tccggcccat	catcgggaaa	cggcgcgctt	480
cgttcgctat	tcggctacgg	aggttttgtc	gccgtagagg	ataaccctgt	tgaaagtcca	540
ttcatctacc	ggcaccacgt	gcgtctccag	cagagtggcc	aactcgtcat	atagaagggt	600
tctttcggcc	ggccagcaga	tagaagtggc	gaagaatggc	acttacgtac	agaatcgaca	660
a						661

(2) INFORMATION FOR SEQ ID NO:842

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1086 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1086

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:842

ggtcagtgc	gagaccagt	gtgtccgct	aggcatatc	ggacattgc	cctggagttg	60
ctggacaagg	atacatccg	ctctcaagta	acagcccgat	gaaagccatg	atatgggctt	120
cggactatgc	cacattatca	ggacgcttca	gagagaaacg	ggcgaaacat	tcgattccgg	180
tctccacgtt	ctgggtatggt	aagtgtatcc	taccatgagc	aatatggact	aagccttcgc	240
attctgacat	agacccctcc	tacacaatgg	gggctatggc	tcgcaaacgc	aaaggatcat	300
cgaagaactg	cgccggcaag	gtctatacga	cctcaatcgc	agctgtccct	accccgcccc	360
acccaacgca	ttgccatagt	ctcatccggt	gcgctgccgg	cttcgaagat	ttcatcgcac	420
accttagcca	ttcggccgag	ctttctgttt	ctatcccgtc	ctcttccaag	ccgtgatgca	480
aggagcacia	ccgaagcatc	gggtgtggga	gctttggagc	gcatacgata	tcaccgggat	540
ctttcgatgt	agtgggtcatc	attcgcggag	gaggagcagt	gagcgaacgg	cagctttcga	600
ctcgtttgcc	atcggaacag	catgtgcacg	cttcccttcc	ctatccttac	cggcatcgga	660
cacgacaggg	acgagacggt	gggtggactgg	tagcttatcg	ttcgctcaag	acacctacgg	720
ctgtggccga	ttttctgtaa	actgccagcg	cgaagagtgg	aaattgatcg	acgaccttcg	780
ctccgtgctg	ccgaaggact	tcgaatgatg	atgatgtact	gccacgaacg	gctattcagc	840
tatcgctccg	cacaccggcc	atactgaaat	catctgttcg	tgagaacacc	atcggataaa	900
gtccgtagaa	gatcgcaccc	gattagccgc	taacagcggg	tcgccttcgg	acttcagcaa	960
ctccaaatag	caagccgcag	ctgccggcct	tgatgaagag	cgaactgaaa	caaaaatacgg	1020
gtcaattggt	caggtagcag	cccgaactgcc	tttattgggt	acagccaatc	tgaagaacac	1080
aatcga						1086

(2) INFORMATION FOR SEQ ID NO:843

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 696 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...696

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:843

aattgctctc	acgttccttt	tgcacgcact	ctattcgtgt	ttggttcagt	cgcgaaaacg	60
ctgtagcaag	tctttcagac	gctcttcggt	caagtccggt	cggccataga	cgaagtgtga	120
ctgtcggccg	attctcctgt	acgagccgct	ttttcttata	gaaagcactt	ttgtaggcct	180
ctacttcctg	tcggcgggta	gctcttctcc	ttggagtaat	atggccaagc	tgtcaagtag	240
ctcgactcgg	tcatgtccgc	caaacgggcg	tttacacttg	ttttactttc	ttcgctgatt	300
tggattcgtt	ttccaaagga	gtcggatctg	ccacttccag	gcttgagcct	ccggcaaccg	360
gtctgttgtc	gtaggtttca	attcttcgga	ttaggctgtg	ccattgaatc	cgtgagaggg	420
ttcgtagggt	ttccatacag	tactgcttta	atgttcactt	ccaccgaaaa	cctcctgtcc	480
ggagagatac	attcggtaact	tttccaatac	aacggaaggt	aattatcaga	taatgattcg	540
ttttcaaaaag	accaaattaa	agaaaaaata	ttgacagacc	ataatttgaa	gggtgtttgca	600
gggcaaggca	ttcaaaaacaa	gcattctata	aagtttttag	ttcgttgaat	gaagtccgtc	660

ggtcattgtat tcaagtcact atcgggaaaa tcctct

696

(2) INFORMATION FOR SEQ ID NO:844

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 951 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...951

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:844

ggctctttcca	ttcaattcgg	acttcgtgac	gatgaatcgg	cggctcacca	atgcgactcg	60
gtaggtatcc	actgcttcct	atccatctgt	acctctgtcc	gatgaagctg	ctaataccg	120
cagtattttg	cggattggta	attacgaaac	cctgtcgttt	tcatttagaa	ccgtatccga	180
atgtgccagc	gaaatatgtt	ggtacgcgaa	tccattgtgc	gcgaaatcac	gtagtcatga	240
ccttttagcag	ttggcggact	tccgctaattg	ttttggagaa	aacggccgga	tttttacaac	300
cagagagagt	gcgatatccct	gattatcatc	gttatgttcc	agatgtccat	cttctctttc	360
tctttggcca	cactgatctt	gaaaatagct	cgacgatcag	catggacgca	ataatcccca	420
ccactccgag	cggataagcc	aagcataacc	gagtgtgata	gtcggatcgc	cggttcccgt	480
tagatcatgg	atgtctgtc	ggcagctccc	aggcccgggtg	tgttcgtgac	ggcacccggaa	540
gaattcctac	cattgtggac	atggatatgc	ctgtcacgaa	gtgcagaaca	ccgttgtcag	600
tacccccaga	aagacgacgc	ccatagccag	taggttcagg	taagcccccc	cttgccaaga	660
gaggagaaaa	aacccggggcc	cacttgatcc	ccaccgagta	aacgaatagg	atcagtcgga	720
actctttgaa	gaaatatgta	cgtcaggatg	cagattcatg	ccgaaatgtc	ctaagactat	780
tccgaaaaag	aacgaaagta	acccccaaag	aaattccgaa	gatctttatc	tttccaacca	840
aatccctaag	gcaatcgta	cggcgaccaa	gagaatggag	tgccactcct	acaccgaaag	900
caagtcatta	agccattgca	tattcatcca	acagcttata	gtagtcaata	g	951

(2) INFORMATION FOR SEQ ID NO:845

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 567 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...567

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:845

gatccccagt	tttcaagacc	aacgttggta	agtatatagc	ggatatttacg	tccttattca	60
tttcgctgac	ttgctcgcgt	actatccggt	acattttcca	ttggcttccg	cctgtttgtt	120
ggccaaagct	tgtgtcatgc	tgagttcaat	ctttggcctt	cttcttgcat	cttcaggatt	180
ttctcctgtt	ccactctgca	gcattctcgc	tggtgaatgc	attcgtccga	agacggcggt	240
ggaaacctcc	gcagctttct	gcattggcagt	catcttggta	gccaagggtc	tttgttctgc	300
tcagcttcgg	ccgcaagttg	tttgttcatt	tcccgaaagt	attatattgc	gaggccaggc	360
tgtccatcct	tacgaaagct	ataggcagag	tgcggcagct	tgttctgcct	tatgatttgt	420
tgtcttggct	tttgatgccg	agaacgcggc	atcataatga	agaggatgat	gatggcaacg	480
gccagtacaa	cctcgatgac	ataatggatc	tgtttcattt	gtgaatggga	tatgtttttg	540
gttcgtatta	ttcgagttct	ttgattc				567

(2) INFORMATION FOR SEQ ID NO:846

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 662 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...662

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:846

ttatgggttaa	agacggcaac	ctttccgcag	aaaaaaaaacg	caaggcctaa	ttaaccccaa	60
ctaccagaag	agggtgtgtc	aaaattcagt	ttcaagcagg	ggccgggatc	atcgtttgta	120
tagaaaaacc	gctatcaa	aatagttcc	taaatgtttg	cttagagggg	ggagttttta	180
gtatgagagc	tgagtccctc	aatacaagac	ttttgggatt	tgagggggat	ccccctgcct	240
acggaagagc	tgattttgtt	cttccggcgg	aggcgaaaag	ggttcattga	tccatggcct	300
tttcttacgt	cgagctgacg	tgaggttatc	aatcgcatag	aaatcgaacc	gaaaatcgcc	360
caaacttgaa	accaaaatcc	cccaaaaatg	gtcgagaatc	ttttcgttct	caggcgagat	420
tttttcaact	cccgaaccaa	ataaaaat	tctcagacca	cgtttttcag	aactgaaata	480
caccggattt	tcagtacacg	tcaatcattc	ggaagcgaaa	aaggcagtct	gaatgaaaga	540
tgcgcagat	tgtcaagttc	cggacctgt	ggcatcggat	ttgtcgttct	ttcgaccgaa	600
tagaaccaac	caaccattaa	cggattataa	tccactagag	tagaaaggac	caatcggggt	660
aa						662

(2) INFORMATION FOR SEQ ID NO:847

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1259 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1259

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:847

gcaatataac	cacggaagac	aaatggctcg	gtcaggctct	ttgtattgct	cggctgaagg	60
aggcccatcc	gcagacaatg	gtgaaagtga	tatccagctg	agaatataat	cgccaatctg	120
cttaccacgt	atggctatac	caagatttca	aatgttatga	tccgggagta	actcctaaaa	180
acattattga	tgctttaacg	gaggaatctc	gttggccaac	tatacgggcc	acggaagcga	240
aacagttggg	gtacgtctca	cttcggcacc	actcatgtga	agcagcttac	caacgcaacc	300
agctaccggt	tattttcgac	gtagcttggt	tgaatggcga	tttctgtaca	acgtaccatg	360
tttcgcagaa	gccctgatgc	gtgcacaaaa	agtggtaaac	cgacagggtac	tggttgctatc	420
atagcgtcta	cgatcaacca	gcttgggctt	ctcctatgcg	cgggcaggat	gagatgaacg	480
aaattctgtg	gaaaaacacc	cgaacaacat	caagcgtact	ttcggagggtg	tcaccatgac	540
ggtatgtttg	ctatggtgga	aaagtataaa	aaggatgggtg	agaagatgtc	gacacatgga	600
ctgtattcgg	cgaccctcgc	ctgctcgttc	gtacactgtc	ccgacaaaaa	tgcaggttac	660
ggctccggct	cagattaatt	tgacgggtgct	tcagtcacacg	tatcttgcca	ttataatggt	720
gctattgcta	ccattcagcc	aatggaaaga	tggtcgggtc	tgcagttgtc	gaaaatggaa	780
cagcacaatc	aatctgacag	gtctgacaaa	tgaagcacgc	cttaccctta	cagagttggt	840
tacaacaaag	agacggttat	taagaccatc	aacactaatg	gtagcctaac	ccctaccagc	900
ctgtttccaa	cttgactgct	acaacgcagg	gcagaaaagta	acgctcaagt	gggatgcacc	960
gagcacgaaa	accaatgcaa	cactaatacc	gctcgcagcg	tggatggcat	acgagaactg	1020
gttcttctgc	agtcagcgat	gccccgaac	ttcttcgcag	cggtcaggcc	gagattgtct	1080
tgaagctcac	gatgtttgga	atgatggatc	cggttatcag	attctttgga	tgcagaccat	1140
gatcaatatg	gacaggttat	acccagtgat	acccatctct	ttggccgaac	tgtatgtccc	1200
ggccaatctg	ttcgtccgt	tcgaaatacg	gttccggaaa	agcagatcct	tcttggtcc	1259

(2) INFORMATION FOR SEQ ID NO:848

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1271 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1271

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:848

tacatctcca atttctgaga agcagttata gccggtggag ctatcatcca acggccaaat

aaccgataat	gatcatccaa	aagagcggag	aagccaaatc	gtcatcaaca	cgactatcac	120
acggatagca	ttcacattcc	atctcggtat	gcagcaatac	cgctacacac	gccacacaaa	180
acggcatgat	ccatgtgcga	taaaacttcc	gcttcgggagc	ctccccggac	atgtatcgat	240
agcctaagtt	tctctctcct	tctgactgta	accggccccct	gcagaatatc	cggcgtcgtgta	300
ctgtcttcat	tggaagaaaa	gtgctctccc	gtattgatct	ttttatgact	tcacgaatca	360
ggccgatact	tattacggcg	tgttcgctat	gcaacgcacc	accatcatgt	cggacaagta	420
ggcttcgaat	tcttcgatcg	tttacaatcc	gtatggttct	cccgatcgaa	atgtgagggt	480
aaattgtgca	atactcctcc	agcagggttat	aggcatcctc	gtcgtatgtgg	aagaccttgc	540
tcccagattc	atcgtgagcg	tttttttcat	cttgtttttc	cgtaataaca	gattcttctt	600
cgggcttaat	atcgcgcacc	aatagttgca	atgatttttg	ccgttgaatt	cgttctcttc	660
tatcgtgtag	caaagacgaa	atgagcgttt	ttgatctcat	cgcaatgacc	ggcctgatta	720
aacgcaatcc	cactcccggg	tggcgttcgc	ccgatccac	tctcacatct	atcttcagggt	780
gttcgaagct	tttccctacag	ccctgctacc	accggcatca	tacagttgtc	gggtataaaag	840
accggcttgg	agttttccgg	gccgaatggc	cccattccgct	tgggttgtcg	agaagtttgt	900
aattgacctc	ttcgatggat	atttcggcat	cacatctatt	tgtggcacca	atagtccgg	960
cgatacagcc	tcttcggcat	gtccgtaatc	atctttcggg	aggtttccag	attctcttct	1020
ttgatcgtcg	accggaggca	aaaggatgcc	ctccgaaatt	gaccagcaag	tccttgcatg	1080
ttcgatggct	ttgtacacat	cgaaccctcc	tacggatcga	gccgagctga	aatgaaatca	1140
ccgctcttag	tcatcacgat	cgtcgggcgc	gaatagggtc	ggtcatcctg	ctggccacta	1200
tgccgataac	gcccttgtgc	cattcggccg	gtagataacg	aggatcttct	tgtccacatc	1260
ggatagctcg	c					1271

(2) INFORMATION FOR SEQ ID NO:849

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 356 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...356

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:849

gctgtccggt	tccctatcct	ccacgggcgc	atggcttggt	gtggagtatt	tccgagagct	60
tggctcgcag	gcatacggca	cctcttacga	ggagggtacg	gcttcgtaga	taatctctg	120
tgggcggaag	tagtagtaac	cattgtcctc	agcagggcac	tgatggctctg	acgctcttcg	180
tgcagctttg	ccaaatgaac	tggctctcct	tcctgatcaa	agacggagtc	tgcttgtaag	240
ccagatgctg	tcggggaaag	tgctgatcgg	taagggaatg	atgctgtcgt	aatgtaagga	300
gaggccatat	ccaccgtata	ggagattttg	gctttgagcg	agtctttttc	agagtg	356

(2) INFORMATION FOR SEQ ID NO:850

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1642 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1642
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:850

tagaggatcc	cctggaaaaa	attccttttc	atthtttgacc	gcctgtcata	ctgatcgcta	60
tgccttttta	gcaacgtttc	cttcacttgg	gcaaagaaat	tatatctgaa	gtgaacagaa	120
cagccttttc	gttttttaat	atagagcgag	cataatccga	cctcggccat	tctttcagaa	180
aaagcgaacc	gcaatccaga	aataatggaa	cgagaatctg	aaaaatctca	cgccacaaag	240
ttttcttttg	gtttgaaaat	ttttcctttc	cgacgcagga	aaaaaatatt	ttaccgcgac	300
tttttgagtc	ctcttaagta	aggatatttt	tttaacatac	ttgaccgaat	tatgcattta	360
accatagtgt	agaatcctca	tctgtaggta	attgcaccga	acaaccgatt	tgtagtgata	420
ttatgtctga	cgaaacgcgt	atthttgactt	caaatgaaag	aaagattgaa	ccaaaccgta	480
cgctattttc	gcctatactc	ttcgcagtat	atgccggcct	ggtagatatc	ttcactcact	540
ccatatcatc	aatggcgtga	tcacgtccca	ctcccacgta	cagtggggga	caacgaaagc	600
gatccgcagg	acaatccgca	ttcggattcg	gaattgatct	gtacaatcag	ctttcggcca	660
tattcacgac	ttatttggat	acgccgccat	agacttgaaa	gaacctgtga	gggttgctcg	720
cgctgttctt	ttctttgcga	taatcttact	gctctcattt	cggagctaac	tccttccaat	780
catccagggc	tcctcccgtg	gcctgatcca	ttcttacctt	atthtcggacg	atcattcatt	840
cggatgggat	tgcgcgcgct	tacaatgaga	tccgttgcat	cgcacttgta	gatctgcctt	900
tctatgctga	tttatcaagg	ggatcgaaat	tcattccatag	ccgtgatgca	aggattttca	960
tccttcttaa	taccgatctt	tcgtgggata	gggagtggga	cacactctcc	taacctcaaa	1020
aaccgactaa	aaggatcgga	ataaggatac	cgaacagaca	ctatatccat	atcaagccat	1080
caaaccaaaa	aataaaaatga	aacaactaaa	cattatcagc	ttcatcatgc	tttcctattc	1140
ttaggaaacga	gcgcacgggc	tcagcaatcg	ggcggaccgt	tacagggtacc	gtagtggaca	1200
aaagctcaaa	agaacctatc	gcatagtaca	agtattcgtc	aaaaggaacc	actctcggaa	1260
cttccacgga	tgcacggaaa	ctactcgatc	aagggaatcc	cttcgggtaa	tcaaactatc	1320
gtacccgact	catgggttac	tcactttgcg	aagaaaaagt	acatatagaa	aagggtggtc	1380
ccgccacgta	gacctctatc	tgaccgaaga	gattctctct	ccnatggggg	agtgggtatc	1440
gccaatagaa	acgagacttt	ccgccgtcaa	caccctcggt	ggtaacggta	ctgtcgccgg	1500
aacttttctt	caaaaaccaat	ctaccaacct	gagtcaggga	cttaagttcc	agcccgggtc	1560
gcgcgtgggg	acaactgtca	gaactgcggt	ttcaaccaag	ttcgtatcaa	tggactcaag	1620
gagcctattc	gcaaattctt	at				1642

(2) INFORMATION FOR SEQ ID NO:851

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 919 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...919

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:851

catcgaagtt	ctattttcat	caagcgtcct	tacatctctg	ttgtgggcat	attcagaaga	60
agattctcgg	agaactttcc	aaagggtgaac	gctccagtat	ggctttatag	accgcattct	120
atttgtgatg	cctaattctt	agcagaagcc	cgatggagca	gaaccgagct	tccagatgat	180
acagagaaac	gctgggaggt	attattcgac	ggctcataga	cttaccatgt	gccaaggatg	240
aagaagggaa	gttacccttg	agattattcc	ctttgaagaa	gatgcccagg	ctcgctctat	300
atgtggcagg	aagagcatgc	tcgactatgc	gatactgagg	ctatgaagta	cttgtaggag	360
tctattgtaa	attagaaatc	tacatcatcc	gttttgtctc	attattcagt	tggctcgatg	420
ggatatgtgg	gaaaagtga	atccgctata	gacctgacat	ctgtggagcg	agccatcact	480
cttaccgagt	tttccgccat	tcggcacagc	aagtacacgc	agagatcgca	ggtgttcagt	540
cactcagcaa	cagcaacaac	tccttgccga	gctaccagca	tcttttcaac	tgccgaagcc	600
ctgagtattg	cccaaaaatt	ggggatgaaa	gaaagagttt	taaggatttt	ctcagtcgta	660
atatcggaca	cctctttgct	aaggaagaca	cggactttac	cataaaactca	atatgtaacc	720
gagcgcactt	tctgcttatt	agcatttcgc	caccccttat	taaaccgaaa	gtgtacaaag	780
tgcaatagt	tgccattcaa	atcaatttta	tcaatgagca	attatagatt	caattagaac	840
catacaaagg	tgtgcggaca	cggcatacct	gcccacgtg	cgacgtcctc	gatgcttcgc	900
tcgctatatt	gacacagag					919

(2) INFORMATION FOR SEQ ID NO:852

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 936 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...936

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:852

gaagacgatg	tgacggagga	ggaattgctg	gcctgcgtgc	atcgccctgat	caggatccga	60
cggtagatgg	cttcacgtga	cagctcccc	tcccgaagat	atcgacgagc	agaaaatcat	120
cgaagcagta	gacccgcgca	aggatgtgac	ggatttcac	ccatcaacgt	aggccgtctg	180
agcatcgggt	tgcccgtttc	gtctcggcca	caccgaaggg	aatagtggaa	ctgcttcgtc	240
gctacatatc	cctaccagag	gcaagcattg	cgtagtattg	ggacgcagca	atatgtaggc	300
aagcccgtat	cgcagcttct	gctccaaaag	ggagagccgg	gcgctgcacc	atcaccatct	360
gccatagccg	tacccctaac	atcaaagagg	tagtctgacg	gccgacatta	ttattgcagc	420
tttggggcag	cccgaattcc	tacagccgat	atggtaaagc	ccggagctgt	agtagtggac	480
gtaggtacca	gattgtaccg	gactcgacac	gcaaaagcgg	tttccgtctg	acgggcgact	540
caaattcgat	gaagtggccc	ccaagtgtct	gtacatcact	cccgtaccgg	cggagtaggt	600
ccgatgacca	tcgtatcgct	catgtccaat	acccttcggc	aagtaaagga	ttgtaccggt	660
aaaccctcct	tcccttattt	gccaacacct	tatcgaagag	gcccgtcatc	aatatcgggt	720
cgtccgggtat	gatgacggcc	tcttttctta	ttgacagtgt	gtcatcatgc	gcaaattgct	780
gcgtgcttgc	ggcattcggt	tcttagcgcc	ttgnacttta	cgcattctta	ccccctaaaa	840
tgggggtatgc	caaaaccgaa	ttttgacacg	ggctccctcc	tgcgatactt	tcaagaattc	900

(2) INFORMATION FOR SEQ ID NO:853

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3434 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3434

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:853

tgcaccaacg	gttcgccttc	gttggaaaaa	gaccttcgcg	atggccttga	tatggaaaag	60
ctcatgactg	gaaagcgtga	acagcgtacc	tacgaaaagt	gtttcatatc	gctgagttcg	120
tccacggcat	gtagtaagaa	cgggctctcc	cagatgcccc	atacgccatc	gaaatcttca	180
tcgtgggcat	actctgcttg	ccgaaataac	gtttgtagcc	ggcttgtttg	acaaaagcat	240
cgaagccatt	gatccgtttg	gtgcaccatg	caagaaaatg	gattgataac	cgatcgcccc	300
agagccgtcc	ccaatccttc	aatctcattg	cccgaatagt	gagtgtaatg	aagtgtgagc	360
ggaggggaag	caacgagctt	aatatggacg	gctggcatcg	atactcttgc	gcccgttggc	420
aaaagcctgt	tcgaaaaggt	acccttttgt	gaaatcgagt	cgaagcaggg	tgtatatcct	480
ttgtaatcgg	aatgtcttgg	ttcagccgtc	ctacgtattg	gcgagcaaa	ctttcgatgt	540
tatcaccatc	acgttgcgtc	cacgcaactg	actgaaacga	gctgtcgttc	cgtcgcaaaa	600
tgatgaatgg	gattgaatac	ttgctccaac	tccttttgga	ggcataaaaa	cgcttttcc	660
ccaatccctg	tttgccaatg	gtacgatgat	gctgtagggc	gtgttcagta	ccaaagccct	720
atgtttccat	ttgtcaccga	cagattggca	taactcattg	tcataggacg	ccacgacttg	780
gcaaaactgcc	tnctcgata	ccccatacga	taaatgcaat	agcggcaacg	aggctaccaa	840
cgtgaactgt	ataataatgt	aggctgtctt	tcgcttcggc	atgggtgcgt	ccggcttgac	900
ccgatgatat	agccatacca	tagcagcaac	gggactatag	ccagcaggct	catataccag	960
taattcagga	gaagatgcca	atcagtcctc	cgccctcatg	gctgaattca	gagaaaaccg	1020
tcgaggatgt	cgtttcaagg	tgtatggata	gtaaaatacaa	tcggccagac	ctgccgccc	1080
cccaaagcat	ttggcacgaa	aaagggtccag	tcggtcagga	ttcgatagat	cgcttggcac	1140
gaaacctgaa	cggcagaaa	ctcaacagaa	taaaaaggca	ttcaaataca	aaacggaagc	1200
cgtgtcgaac	ctaagccctc	ccatcatgca	cgccatacct	gctcggcagt	catgtcggca	1260
aaaaagcgat	agttaagagg	tagaacagtc	cacgggcaat	accgaaaagg	aaataagcca	1320
atgcatacga	taggcaaaa	cccaccagct	gttcgttcgt	atcgtccgct	taaaatattc	1380
atatctcttt	gtgtgtgttc	tattcggatt	ggaggcaggg	acgagggtaa	tgaatgattt	1440
cggtcacata	tcccccaaat	tgagcctatt	catgattcgg	tgacacgatg	atcccgttgc	1500
accggcattg	gatctgatga	gtctgtgtct	gcgcgggatg	cggcgtccct	ataggccttg	1560
tccgtttgat	tcgcttgatc	aggttgccaa	attcctctgc	tgaggatacg	gagaagctcc	1620
gccgacatct	atcaattcac	gggcttcctt	gaatttctca	tatcgtgtcc	gaaaataacc	1680
ggtataccat	agactgcggc	ctcgggtgta	ttgtgatgcc	tttgccgaat	cctcctccga	1740
taaaagctac	ttgaccgtag	cgataatgga	ggataggaga	ccgaagctgt	ctacaatcag	1800
acaatcctgc	cggcaatatc	gctttccgta	gcttccgaaa	gtcgtatgaa	aggccgtcgt	1860
attgcgatat	gatctgaagc	aaatgttcct	tgctgatttc	gtgcgggtgc	atatgagttt	1920
gatcttgagg	tttcgattga	agtagcgtag	gagtatctct	cgtcgggagg	ccaactgcta	1980
ccgcccacaa	tgaccaaaac	gtcttccgga	cggaaagcagc	aaaacgctct	atcagcggaa	2040
gcgatttccg	agcttcatat	cggagatcac	cgggtcgaag	cgcgtatctc	ccgctacgga	2100
tacatgggcta	tcccatgctt	ttcaagtagc	aggcgtgaag	ccttgtcctg	aacaaaatgt	2160

gtgtaaagca	gtgtagcaaa	cgtttgtatg	ctcctccata	ccagcgaaaa	acagctgtga	2220
cggtcggaag	atggatgaaa	ccagataggt	aggttctgcc	tacgctccaa	ttctgtcagg	2280
aaacagggcc	agaagtcgta	tttatgaaaa	tagccatctc	aggcttgacc	agatccagaa	2340
acttacgcac	tcggcaaacg	atctgccggc	aaatacacga	tcacgtcggc	accttcgtaa	2400
tcttacgtac	ctcatatccc	gaggggctga	agaaggtaag	cacgatacta	agtccggata	2460
ttcgcttcgg	atgcgttcta	tcatcggtct	cccctgctca	attcgcccaa	agaagctgca	2520
tgaaaccata	tatagcgccc	gcccggcata	tgccctcacg	cagctgacgc	cacaccttcc	2580
atcgcccacg	aacctctgc	gggctttggg	attgaacgga	acggcaagtt	tgatcagcga	2640
agaataacca	atccgatcag	gctgaaaagg	aatcgcatat	atttcgaaaa	aaattttgct	2700
gtcagcctaa	gacttcgatg	gcacgacgta	tgcgtccaac	ggtccttcac	gcccagagcac	2760
ttccatgatg	tcgaagatat	gaggtcccct	gcttcgcccc	cgagtgccaa	ccgagtggca	2820
ttcatgatat	tgccgagggtg	atgccattgg	tctcgatcca	attcttcaca	gtgggttcgg	2880
ttgcttcggc	tcaaacgatc	ggtgagagtc	cagcaattcg	gctagttcgc	ccaactgctt	2940
gccgtatctt	ctttccagcg	ttttttcact	gttttttcat	cataggatac	ggtgcgatga	3000
agaagaatcc	ggcttgctcc	catagctctc	cgataaaagt	acacgttcct	tgacgaggga	3060
gattacatga	gctgttttct	cgtcgggtcc	actactccat	tttcgcgaag	gatgggacgg	3120
aagagttcgg	ccaactcgca	ttgtccttac	gctggatata	ttggtgattg	aaccagcgtc	3180
ctttccgtag	tcgaacttgg	ctccggcctt	gctgcatttt	tcgatgtcga	acagcggatc	3240
aattcgtcca	tgctcatgac	atcctgatca	ttgcccggtg	tccgcccaga	agcgcgagga	3300
agnttaccac	tgcttcgggc	agataacccg	cttcacgata	acctttggat	atatctcccg	3360
tttggggatc	tttccactcc	acggaaatac	cggaaatncc	aaacgatcgc	catcgcgttt	3420
gctcagctta	cgtt					3434

(2) INFORMATION FOR SEQ ID NO:854

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 420 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...420

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:854

cctggcgaat	tggtgaatgg	ccgtttcgag	tccggtaaac	atggattcga	gtccgtctgc	60
cctgtcagat	acaaggtgac	gaatttgat	tccagcccta	atagatcaga	tcctcggccg	120
gaatgccact	gtcgagaagt	cccttgattc	ctctatcata	ccctcgtgca	tacgggcatg	180
gagcctgtcc	gttatctttt	gcgtcgggtg	tcgcgatcca	gatcgagacc	gataatcaga	240
ctgtcatagg	aggaaactcg	gtgctttcga	ccggattggt	cttgatgtat	tcgggtatttc	300
gatagccctg	atagctcgct	gtgccgagtc	cacgtccgtc	ttatgtgcag	agggccgtat	360
gcagccagta	taagagtcag	ctctgtcaaa	cttttccttg	cagacgatca	cgaagcgctc	

420

(2) INFORMATION FOR SEQ ID NO:855

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 529 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...529

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:855

cctgcaaadc	gaggctctct	atatcaattt	gctcttccgt	caggaaatgc	tcgtacggca	60
gaaacacagt	tggcactgat	tcgcgagcaa	cgcaatcgac	ggccgaaatg	gttcgcgtag	120
gtaaattgggc	agagggttaag	ctcctcgcat	aaatgccag	atggccaagg	acgaacaact	180
tctcgtacaa	tatcgtcgga	ggaggagctg	gctcgtctgg	acttggggca	agccctcgaa	240
ctggacaccc	cgaaagcatt	gcagtcaagg	ctcccgcac	agacgttctc	gtagagaaaag	300
gttgggatct	ctccttgctc	ccgaagagat	ctatcgcacg	gcttcggcct	gaaaccggca	360
ctgcattcga	gcgagctgca	aatagcttcg	gccgcgaagg	tctggcctcg	ctcgtgcggc	420
atacttccga	cgctcagcct	cctgccggat	acagcaacgg	ttactttccg	cgacctcggc	480
aaggagtatg	cgccatcaac	cccttcttct	ccgaacagtg	gaagaacaa		529

(2) INFORMATION FOR SEQ ID NO:856

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 571 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...571

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:856

agagaaagat	tcttatgaaa	agaccttgct	gatgtctgct	cgtaagcata	tattgtagcc	60
atcaggatat	tcgatcggcg	agaggccgat	ctgccaaagt	agggttgatg	cgctttcgcg	120
atgcagagac	agggcagact	cattggggga	taccgctgat	agctccgttc	ggaaagcgta	180
tgcggatgcc	tatgaggacg	gcaagtagca	cttgccgttt	tgctcaaacg	atgtggtgta	240
gatacactga	gatacgtacg	gggcaggatt	tcgtgcagca	gcttctttatc	ttattaaaaa	300
acgctcatga	gacactctct	tgccattcgc	tttgttcttt	ctgattttgc	atgctctttg	360
tctcttccct	tctgaaggcg	caagagcttt	cttcataggc	aaactcgacc	gtgcagagat	420
gcaaatagga	gagcaggcag	tatagatatt	actatccgca	cggcagattt	ggcgcatact	480
catctgcaaa	acctactgat	tcgacgatga	gtcggatcga	aattttggcc	tttggcattc	540
ggatacgttg	ttgtgaaaga	tccgatcgtg	g			571

(2) INFORMATION FOR SEQ ID NO:857

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 600 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...600

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:857

```
tatattgaaa atcggtgata atatccttaa catataggaa gttattcgac aatatctacc      60
atcttgacga atagttgatg tttccacgat tgaaatcagt acccgtcctc tgattttgta      120
ttaaaaatta agcaaccttt atccaagggtt ttgtactcaa gcctaactga ggtttgatgg      180
aatattctcc attttctagg atacggttaa aaagctatct ttagcttctg ttttgagaag      240
cataatgcat caactgtttc attgttaagc atgcaaccat caatgtaaat tataaaaaact      300
caccattagc aatattaggg tgtatgcttt gatcataaag gtgctagcaa gattgttaga      360
ttgttcaact atatcatctt tgatcatcaa ancttgtgta caaatctata tgacggattc      420
atgtctaaag actctataga acaaaactgac agaaaacatc aaacttgaat gtgtttttta      480
ctaatgttga ataaatccag aagcaaacga catatcatct gctttagaag aaaatgctaa      540
ccttcttctt ttaacttatt gccaaccttt gtactgtggc gattgtagga ctcctaatta      600
```

(2) INFORMATION FOR SEQ ID NO:858

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 534 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...534

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:858

```
gaaagcagca aaatgccata caggcatagc aagaattgct aagtctcgac ctttcaacga      60
```


agaaggtcac	tgcggtattg	ctacactcat	gatcaaagag	gacgatcagc	cgaagcagaa	120
acatttctgc	gcgaagctat	cgaagagtgc	cggttcagcg	caatctgatt	ctgatgctcg	180
tcgaaatatt	ggagaaaaag	gacaaacgca	ggaagcagca	gaatggcgtg	ccaaactacc	240
ggaagagagg	tggaaaagcga	agcggttaat	ttcaatgac	tttacaaggg	taactctatt	300
aacttctttc	aaattaacac	ctgacctcga	tggcaaagaa	gtgtatgtgg	tctggaccgg	360
gcatacacc	ggagtttatg	ataattggga	tgatgtcgag	cgcaaacaga	gggattcaat	420
aaagcccgt	acaaaagctt	tctaccgaaa	gcgatgccct	aagagcctat	gaagacggag	480
cagatgaatt	taccgcagaa	gcatacggat	ccactggtac	cgcaccggag	cana	534

(2) INFORMATION FOR SEQ ID NO:859

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 703 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...703

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:859

cgaccccttt	gatgtcggac	aaacgtgctg	tcagttctgc	cagacggttg	caccgtacag	60
gtcgaggccg	tagaaggtaa	gaccttgagc	aatcagttga	actcccgagt	cccattgcttt	120
acgagcatcc	gtacctcttc	gactaagcct	ccatcgggcg	cgaccgatgc	cggccgggtga	180
taatcggtat	ggcgcatagc	aacagctgcg	atcgagcccc	tcggatattt	tcagataggc	240
ataatccgcg	gagtggtcag	tttgcgcctg	ttctctgcct	cggcataata	agactcccca	300
aatgagaaat	gagttgcttc	cagtcgaatt	tgccgtagta	agctccaact	cgggtatctc	360
cttcttcagg	tcttcccga	accgctcgct	cagcagccca	ttacgtacag	gctgcccata	420
cgctccggcct	tcttcgcctc	cccatctcca	gaatgggtatt	gacagactcc	tcctgtgcat	480
cgcctatgaa	ccgcaggtat	tcaccaccac	gatctcgccg	cataccgaag	cgggatcgta	540
tgcacggtat	agccggttga	caggaactgg	cgcacacgca	cctcgctgcc	accagattct	600
tggagcaccc	aagcgtaatt	acgtctactc	tgtttctctc	attcgccaaa	ggagagagtc	660
cacgaattcc	ttcttacgga	agatctcagg	tcgtcttatg	ccc		703

(2) INFORMATION FOR SEQ ID NO:860

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 697 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...697

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:860

tgctactgat	cgtttattgt	tattgatgat	cgaagtcgtc	gatgcacagg	ccacaaaaac	60
ttatggtctc	aagatcaaca	atctatcaaa	gatagagatt	tcgcgcaagc	cgatggagaa	120
ccactaaagg	aattttcaca	tacttccaag	agaacagctt	attccatctc	ctccgaatag	180
tcctggaaca	ggaagtattg	taggggaagc	gcgtgatatg	gattgcctta	gctctctcgt	240
acaaagagct	ttcagagcat	ccatcccggg	gcctttcttc	gccgagacga	acagcagtca	300
ttcccagagt	tggccatcca	ggctctgttg	agctcctcgg	cactatgttc	tcttttgttc	360
ggggagtaag	gtcgtcttcg	tctttgggtg	tgaagagaac	gcatcgatct	tgttgaagag	420
aagaagcatc	ggcttttctt	ccctgccgtt	atctccgcc	gagtctgggt	caccacctct	480
atttgctctt	gaatgccgga	tgcgacatat	ccaccagtg	caccaacaaa	tccgcctctg	540
cacctcatca	agtgtacttt	tgaagatttc	gaccaactgt	gtgggcagtt	gcggataaac	600
ccgaccgcta	tcgctcagca	agaaaggcaa	attgtcttga	tcaccttgcg	caccgtcgta	660
tttcaacgtg	gcaaacacag	ttggttcggc	gaagacc			697

(2) INFORMATION FOR SEQ ID NO:861

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1133 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
(B) LOCATION 1...1133

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:861

tgaaaaaggc	atccatccca	gcatgagata	gatgcctttc	cttttatcgt	ttgatccaat	60
tatttcgctc	ctttggtttt	acacgtatga	tatctgctct	accgtattag	cttccatcga	120
tgtgtagtat	ttttctttta	cctgctttta	gcagcgagag	ccttgctcgt	ttgtttgagc	180
tcttcgtata	cgcgacggct	ttgatgagac	agcccgggtg	aatggcatcg	ttagaggctg	240
cggcccagct	ttctcaaaat	agcctacggc	ctcttcatat	tttttgagct	gtactaacag	300
tcaccgataa	gacgagtgat	agatggtgct	accatatttt	cctggaggag	aatcccttca	360
gatgatcaat	ggctttctga	tattctccga	ggtgtagtag	caaatgccgg	cataggcctt	420
tgccagattg	gatgcacccg	accggagtat	tttttgatta	ctgtcaacaa	tcccatttcg	480
tttgcaccgt	tccatttaag	gctgcgctgt	ccaattcctg	aatgaatttg	tcttcggcag	540
gtataccttg	gcagcagctt	cacgagcttt	aggttcgtcg	acgaaacgtt	gtaggcaaaa	600
atacctgcc	caatgataaa	aacgcccaga	ataaccagcc	gattttggtc	atgttctttt	660
ctatgaactg	ctctgagcgt	gaaacccttc	tcctacgtgg	ttgtccgggt	gttgattttc	720
tttttttagc	atatttgga	taattattta	tttcttttcg	gtcgcacaaa	ggtagcgtt	780
tggcgtgata	tacaaatgtc	ctgtccgaat	aaatatacga	tatgtaattg	ttgtcgaaaa	840
cgtttcttct	cttcttgctt	ccaatatccg	atttacttgt	ctctcttgag	ccgtcaggta	900
gccgaaaaga	gagctattgc	caatccacta	accgctcttt	acggcatacc	gtatcagttc	960
ggctgcattg	gtgaatccca	tttgtgcaga	atattactac	cgggtgtgtt	ctaccgttcg	1020

gtaactaaag tgcatttttt cggctgnttc tttggcagaa tagccatcgc acagatatgg 1080
 actacttctt tctctcgttg ggtcaagctc gagaagtccg ttctgctctg tgc 1133

(2) INFORMATION FOR SEQ ID NO:862

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 398 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...398

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:862

cgactctcga	ggatccccga	ggagacgacg	gacagggtgtc	ccgcttcggg	ggggattgaa	60
ccctgctacg	atcctccaga	acgagtacgt	agctgtctca	ttattttcca	tatactactg	120
cgattataag	gttatcgag	caaagatcgc	gaggcaaaca	ggaatgatga	agatggggtt	180
cttagcggtt	cttagatgga	ttagaatgga	aaagccgtgt	atctgttcca	atttctggct	240
tgccgatgca	gatttatgtt	gactgcagaa	agaagactgt	agtaatgaat	gaattcttaa	300
aaatggaccg	cgctatgggg	aaggaaacca	gctacggcaa	aaaacaaagc	aataccatgc	360
caatggctgt	aatgctatat	cggacgagtg	gatataat			398

(2) INFORMATION FOR SEQ ID NO:863

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1362 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1362

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:863

ttgcaatagc	aacacataga	taagccgggg	tttgagaaga	agattcaaag	tcgccatagt	60
gagagattat	atattattct	tatcagatc	aacgaatcaa	ttttgcgatt	attctctccc	120
gtcttgggg	ctttacagcc	ccagtctgaa	tgaggcagta	cgtgccgtta	tgctttttga	180

tgctttcggt	ttggcaccgg	ggcagagtat	cagctcctcc	atagactcaa	agaggtcgtc	240
cgggagacgg	acacaccatg	tgtgcaacta	ttagggacga	ctcccttgag	cccaccatct	300
gccagacatt	ccaagagata	atataggcaa	tatactcaat	ggattgtcga	ggggacgctt	360
accgaacttc	tcctcataat	actcgataaa	gggattagta	gtgcctcacg	agcaaggagc	420
aggttatcgc	cttgccattc	aaagcataga	tgtttttata	tgccttttga	gccatcttga	480
gccattcgcc	gtgcttgaag	tattctctga	gatgatgcga	agctttctgt	cgagcatacg	540
atacgttgag	gaatagggat	aaactcccc	gtagtagtgt	catacctgtc	acaagataag	600
gagcttcgcc	acaagtaatt	tccatacgcg	tggagcaaca	tagtctttcc	atgtcttacc	660
ttcggggaat	gtaatagggt	cggtagtgca	atccaagtct	ttgtctcggg	ttgtcgaata	720
ttaaacacat	ccttagacca	aaccaagcct	catcgatcag	attattctga	gcgttgcaaa	780
cccagagggg	gtgaatactt	ctgctttatc	cttggtgcgg	ttggcttggt	cttcttgga	840
ttcagcactc	tgggctgtat	tacagtgtca	tgctccctg	tatgctgtca	gtcgttaattg	900
gtgcatcgta	tttggtacgc	atctcccagt	gagtatagtc	atctgtagcc	caaaagatat	960
tcctctgagt	cgtatggtca	agaggagtct	ttgcagaagt	ccttcggact	gacgcagtag	1020
ttcattctcc	taatgtcgac	ccccatcttc	atatcgctca	cgagtaacct	ctttgcattg	1080
acaagcagtg	gttgtaaat	tactgtatac	catatagaat	tgccatttgg	gcacagatta	1140
gaaataggca	cgacaaatct	gcccctactc	ttagccccgg	ttggggacat	caccaggaaa	1200
aagggcctcg	gtcttttata	gtttttctaa	actcattaca	taagcaaagg	tactaagtta	1260
ggggcatact	aacgagggaa	atggatattt	ctttaccgag	tagatcaaag	tgcaacagat	1320
gggtaaacag	cagagatttc	cgggcattcg	ggttgggctt	tt		1362

(2) INFORMATION FOR SEQ ID NO:864

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 750 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...750

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:864

ccggctcgagt	ttcatgagaa	gaagatcgcc	gaagccggga	aagaccggag	gttttcgagg	60
agcgggtaaa	gaaaaacgaa	gacgggacat	acaaaaaccg	atacggatcg	atggagtgga	120
agacggcagg	gatatacaaa	caatcgccgc	aggctgaaag	agtacgaaga	gaaagcccgg	180
acaggcggag	agcacagccg	atcggcgaat	tatacggctt	tcaattatcc	gtcaagagcg	240
aagccccatg	aaagagagtt	tcgacttcgt	ggataaccgg	ttctttgtga	aagggtgtggc	300
agcatctatt	atacttacaa	caacggacat	ttggetgaag	acccaaactg	gcctgcatga	360
actttctgaa	tgccttgga	aagattccca	gatcgtcgag	agtcatcgga	aagaactggc	420
tgcgacacaa	gccaaagatac	cacgttcgaa	acgatgggtt	ctgccgtatg	gaagaaagag	480
gaggaattgc	ggagctgaag	agacaggccg	cggagctgga	tcgcaagatc	gccctttcgt	540
caaaaaagag	gacaacagcg	aagtgaacc	ggaagaaacg	gtcgtccga	tgcgacaatc	600
gcacgatgc	gcccttacgg	gaggagctaa	aaagggacgg	tcttccgagc	ggaatcatac	660
cgattggaag	gaaatacggg	aggatgaaaa	atcaaacctt	gcataaagcc	tggaaggtgg	720
tgagagatac	agagaatacc	tgatactttc				750

(2) INFORMATION FOR SEQ ID NO:865

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 665 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...665

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:865

```
gggctccaat tcctgtctgt tcgatggctg ggaagatcaa agccaacgtt cccactggg      60
ctatatcctc ggagatgaag ggagcggagc cgtattggac ggctgttcat cggcagcctt      120
ctcaaggggc agatgccgga ggggctggcg aagctttcct gcaggagtat ggcctgacgt      180
ctgccgatat tatcgaagtg tctatcgaaa gcctttcccc aatcgcttct tggccggatt      240
ctccccctta tcgcgagca tttggacatt ccggctgtat atagccttgt acagatagtt      300
tcgacgactt tcttgtgctc aacgtgctcc gatacaatcg tccgatctcc cctccactt      360
catcggtctt gtagcctttc attatcgga aggttgagta gcgtcatcaa aaaaagaggc      420
ttaacgctcg gatcggtact gaaagtccga tggagggact tatacaatat caccacaaca      480
atcatgtttg gaagattacc gaacaagcct tccctgtacg accgactgga agaaaagtca      540
ccagagagat cctcgaagac atcaaccgag aggaccagga aaagtggcga agcccgtcaa      600
gcccggacta ttcccgatga tccgaaccga ctggtccaac aaatcatacc acggcattgg      660
aagcc
```

(2) INFORMATION FOR SEQ ID NO:866

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 402 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...402

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:866

```
gtccaggcat tcaatagcat tttatcttta ttttaattgca tcaatccact ccattctctg      60
taaagtaacg gtcattattg atcatccatt taccaacgtg taggcaaaat cagcatctaa      120
agaaagtcct ttccaagaag cacctaagag aaaccacgtg taaataggagg agtaacagac      180
ttatcaattc gtgtctcaag tcagctgagt actggcttgt tgtaacttta ttaccatccg      240
```

catctacttg accaggaaca taccacaact gcttaccggt ttttttgtcg attnagcata	300
ttcagctcat atagaacgaa ttgggggtacc caatttncca tatgtaccgg tattaggcaa	360
catgtactta ttgagaccna agaaaagctt ttttatttcc tg	402

(2) INFORMATION FOR SEQ ID NO:867

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 568 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...568

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:867

ggcttcgagc cgttccagct cctgcttctc cttgaaggtc agctttcgcg acgctcggca	60
gcgtcgggtc ggggcttttc gctttctgcc ttacgtgtga gggggaagat tcgacgggtc	120
gcctttcggc ctcttcctgc tgtttggttc gcggtactgg gtgtagttgc cggggaaatc	180
cttcacgatg ccgttccctc gaacgtgaag agatggttca ctacctgtc catgaagaag	240
cggctctcga gacgacgagt acgcatcctt tgaattcgct caggtagttc tccacacgtt	300
cagcgtgagg atatcgaggt cgttgggtggg ctcgtcgaga atcggaaatt ggggttcttc	360
atcagcacgg tgcagaggta gagcctgcgc tgctgccacc gctcaacttg tggatcggcg	420
tatattgctt ctccggcggg aaaggaactg cgtcagcaag gcccgatgcc cgagagggtg	480
gtaccatcct ttattccgaa tcacctcggc gatgtcctgc acggcttcna tgacgcgttg	540
gtttcgtcaa actgcatgcc cttctgac	568

(2) INFORMATION FOR SEQ ID NO:868

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 672 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...672

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:868

tagccattgc	tggtatccga	agcatgaggc	tggtataataa	gaccataaga	attttcgtcc	60
tgatatggta	atcgggtgtag	gaggctatgc	cagtggccaa	ccttacgcag	agcacattcc	120
ctcgggatcc	ccaccctcat	tcaagagaaa	acagctatgc	cgggtgaacg	aataaaactgc	180
tgagccgagg	agcgcaaaaa	tctgcgtggc	ttatcccga	atggataaat	tcttctctcc	240
tgaagatcg	tttttaccgg	caatccgatt	cggcctgaaa	tagaattcgg	ccaccagcc	300
gctcggagtc	tcttcgcttt	ttcggcttcg	agcagtcga	atccctgtcg	tcttggtggt	360
cggaggtagc	ttgggtgccc	tgactattaa	cagagtatcg	ccgacaagct	cggcaaatgg	420
gcagaaagcg	gtgtacacct	ttatggcaaa	cgggaaagaa	ctatatagag	acagccagaa	480
aagcagtaga	aatcatcccg	ggttgaaatg	ctatgtcaat	gattttatca	ctcgaatggt	540
tatgcatact	gtgcagccga	cttggtagtg	tcacgagccg	gagcttgccc	atttcagagc	600
tttgcttgct	gggaaaacct	acgatactgg	ttccctccca	atgtggcaga	agaccatcaa	660
acaagaatg	ct					672

(2) INFORMATION FOR SEQ ID NO:869

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2760 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2760

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:869

ttcggcctcg	tagaagagcg	tccgcgtctt	gagcgatgcg	tttccggcac	gtctttctgt	60
gccagctcat	agagagatcc	ccatgtgccc	aggctctgcc	gccgaagtcc	acgggcatga	120
ccaagacatt	gtccgccttc	tccatcagcc	aaagtcgatg	gaaatgctcg	gacagtaggg	180
gaaagcctga	tcgatgaacg	ccgctcttca	ggtgtattga	agtgtgccaa	gccattttcg	240
agagagaggt	tacttccggc	agatgcttgc	ggaatgcggc	aaggatgctc	tccagttcca	300
tacgaacatt	ccactattcc	acaggaattc	tccactggcg	aggagatgct	tgccatctcg	360
gcattgggct	tctccgtaaa	ggttttcaca	cgataaaaatc	accggtcttt	tcttcagcca	420
tttggatata	tccatagccc	gctccggacg	ggatggacgg	atgccgagcg	tcacgagatg	480
ctcgtgatcg	ctacgaactc	caacgcttcc	gatgcagcac	gcacgaattc	gtcttcgcga	540
ggatcagatg	atccgaagga	gctacgatta	tgttggcttt	gggattgccg	cgtaaattgtg	600
atagctggca	tatgcgatgc	agggtgccgt	attgcgaggg	tcggttcgcg	caggatttga	660
tccggttcga	tctcaggaag	ctgttccgca	ccttgtccac	gtaaagttca	ttggtaacga	720
ccagaatggt	ttcccgggga	taaaccgtgc	gaaacggtca	tatgtcatct	gcaggagggga	780
gcgtcgggtg	cgaagaagtc	gaggaactgt	ttgggatggg	attcacggct	gnaggccaaa	840
agcggcttcc	tattccccct	cccataatga	cgcaataatt	gttttcacag	ccatagtcgc	900
tattctattt	ttaagttctt	agacaaaaact	atcaaaaataa	taacgtcatg	tctcaagaaa	960
atcgtaactg	tggttcgtaa	taatttcata	ggccaatgga	ggattttttc	cctcctcaca	1020
tcgtttcgcg	acttgggtgg	tttttctcta	ctttagcggg	cggaaaaaatt	attcgcaaca	1080
tatttttctt	ctccccaaac	tctttgcttt	tttcgcaaat	gccaaggtcg	atcgaaaaat	1140
ctcattctaa	aatcaccaat	aattatcacc	aatacagtat	gaaaagaagc	agacttttag	1200
gccgcacgtg	agtactatct	ctatgggtgc	cacaattccg	gcttcggctg	tcagccaacc	1260
gcagatgacg	ccctgcagtc	gacacacacc	tccgatcggt	cgttcggcag	gggagctcag	1320
cagtagctga	cgaatggagt	gccgccatgc	cccaaaccac	atggagcagc	cagctgatgt	1380
cagttggtac	acggcgagacg	gcacggaatt	cactctcacc	atgcggagca	gtttgcaggc	1440

ttggccaagc	tcgtcaacag	cggaaaagtc	tgaagggtgt	gaccatcaag	ctgggtaatg	1500
acgtggactt	ctcggctaac	gcttcgatga	ggtgatcggc	aaggataatg	acaacccctt	1560
ttccggcatt	tcgatggagg	caaccataca	ataacgggcg	tgatgatcag	cgatccctct	1620
tgggattcat	cggattcttc	ggacaaaacca	acgaggccat	tattcgaata	caatcatccg	1680
caatgctacg	gtcgtaggtt	cggccccggc	agggtgtctcg	tttgcaacat	ttacaacaag	1740
ggactcgtaa	gcaactgcca	tgctatgact	gtcgaatcgt	ttccgctcca	tacgaaacga	1800
gcttcggagg	cagggtgcag	ggtctttggt	tggaggccctt	ttggatgaat	ccaagataga	1860
aattgctctg	ccactcgtgt	ggaagtctat	agccagagcc	aaagcgggtg	ttcatatccc	1920
aggcatacaa	tctgtgcgaa	gtaaagaatt	gcttcgtaac	gacagcaaga	taatcgcaga	1980
cgttgggttg	atcggtggat	ttgtcggcaa	aactttgctt	tcttccccgg	aaccgagtct	2040
actttctcca	actgctatct	ctcaatgtgg	aagtcgtatc	gcttgacagt	ggtgatcaag	2100
ccgttctgga	gggtttgtcg	gtcagggtatc	agccaacttc	attgccaagc	actgctcgtg	2160
tcagccaaag	taacgggagg	aaaaaatccc	ggtgcttttg	tcggttgacg	gcagatgaat	2220
ccatgaactg	caaatacgac	ggttgcttct	acaaaacgaa	caaaacccgg	gtatggtcgg	2280
cataggaaac	gggcgtcgaa	atactgccat	cgcagggtatg	ccggaagcgg	caatgaagac	2340
tgccgatatg	gcgccaagct	caatgcagat	caaaatcctg	ctccctggct	tcaggcaaac	2400
gcgcaaacia	cggttggccg	tacctcaaag	acaacaaacc	ggtaataacc	ctctggccgc	2460
tcccatttcc	catgagatcc	gtatttgggc	tactgccggc	ggatattcat	tgcgggtgct	2520
cctgcgggca	catctgttca	ggtgtacgta	tgcaaggaca	tcggatttac	aatgctgccg	2580
tgcttgacga	tcatgacttg	cagttgcac	cgggtgtatac	gttgtagcag	ccggtgacag	2640
cacagcaaag	tgatcgttcc	ctaagagaga	ggtcgatagg	aaaaagttgc	atcctcatga	2700
gcgatttggt	tgccgcaagt	cgtttgtgca	ggattctttt	aatgttgtgc	ccggggatcc	

(2) INFORMATION FOR SEQ ID NO:870

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 556 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...556

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:870

agagcaagtt	ttccatctcg	ctgcctcgtc	tgctgcctgc	cacgggcggt	gggagcctaa	60
agatcctatt	gacgatgtcg	gtatggtaca	gcttattatg	ccttccgtct	gttggataag	120
gatgtcgaga	tcagcctgtc	cacacggaga	gtcgtgagtt	tcgtgaccac	gtgatgccgc	180
tcggtatcac	ctcggtagtg	ccggcagcaa	gaccgaaccc	ggaggatatg	ccgaagagaa	240
tgccgtctgg	agcaattcgc	catcaacgat	gcccgcagtc	cggccgaaat	ggctccgatc	300
ttcgcgcgact	tggctacgag	ccggtttgga	aagactggga	tgcttcatgt	aacagaagat	360
tcttaccgta	acgcctcgcg	tccgaagcga	aggatcttca	taagaataaa	ggcttgctct	420
ccggtcgagg	aaagcagcct	tgtccgtttt	tggttttatc	gtttgaatcc	ttacaagcga	480
atacctaagc	tacgtggaaa	gaggatttct	ttcagcgtag	cctncaagtt	tttagtctcg	540
gtttaatggc	tttacc					556

(2) INFORMATION FOR SEQ ID NO:871

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1368 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1368

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:871

acttccgttt	tatccagaat	gttcttaatc	ctcggatcgg	attcgtagtc	gacagcagat	60
gttctatgag	tcggagcagn	accacatatc	cggtcgttcg	tctccgtgca	tcgtagaagt	120
atagagcacg	cgaggctttt	tccctgtttg	gcagaggacg	tcagcttgca	aatcatcagt	180
ttacgatcct	ttacggcttg	ccaatgacgg	aagtagtaca	aagtgatgga	tactttgttt	240
ggaaccttcc	atcatgctga	tataggcttc	ataggtgggg	taagcattcc	attctatttt	300
tctcctgagc	ggtagtcgaa	catctcgaca	gcgcgctgca	tggtggagga	gtcaagaatg	360
taggcttgag	cccatagcgc	aggaatgcct	cgactcctct	tcgctggcat	aggcaatggc	420
ttcattgggt	acgggggtcaa	atcgtcgcag	gacatgatca	gagccagctc	ttgtagaacg	480
gccctatcag	cactttgaat	gagaagtagg	cctcgccccg	ttcgtcaaag	ttgaaataac	540
tttgccctgt	tgtgcctgca	tgctgccgat	gaaagtcagc	aaagcaacaa	aatgccaaaga	600
agcaaaaaat	tctttttctt	cataaatagg	ataattagtt	tgttattgga	ttcttgcaat	660
atcctttttg	gagaaaaagg	tgctcgtttt	tgcataacgg	tatggcagtg	ggagcatatt	720
tttcgggcta	aatgtctcgc	aaagataaaa	atattcctat	gccattatct	ttttgagcct	780
aaaagtcaat	tgcatattcc	acttagttga	tagtttcagg	atgggatgtt	cccaaaggag	840
attgttgcat	gggagtttca	ttgagctctt	ttgctgcaga	gcgattctta	gtgtcttcgg	900
gaaagggtcaa	accttcggta	tatggacaca	gaagcaaaca	gaaatttcat	caagtttcca	960
ttagagaagt	actcctttcc	cgtcaaatca	atgcttgtag	cgataggcga	gaaataagga	1020
atgattgtcg	ctgattcttg	cttcctgcac	gatgcaggac	gcgattgtca	gctgattctg	1080
cttcctgcac	gatgcaggac	gcaattgtca	gctgattctg	ctcccgtaat	gcgctaacta	1140
tcagctatct	gcaactatct	tataggactt	tcattgagtc	ttttgccgca	gagttgattc	1200
ttaagtgttt	ttcagattac	ttgagtttgc	agagagatcg	catgaagctc	tcctttcttc	1260
gtcaaatcaa	tgcatattct	gncttgatca	atatgagggg	ggaagggtta	ttgtataacg	1320
gtccaaaagt	gcctttttccg	gatcaaaagtc	caaataaaaa	ccttgtag		1368

(2) INFORMATION FOR SEQ ID NO:872

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 589 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...589

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:872

tacacgtgtc	aagccccgtgc	aactntccgc	tttgctcgta	acgatacacg	tcccgaactc	60
ggcccaaacg	aatcggtaga	tcgcgatagg	aatgtggatg	atcntgaata	tctcgcagtg	120
gtgaggcat	tcattggctt	tagcatgact	cttctccttc	ctgcggcgta	ttgatcggac	180
ggaaagaatc	ctgtcctatt	tggcatagt	cccggagggtg	atgtagagat	tcttattgcc	240
gatatcggcg	tgattacctg	ttggtagcca	aagtgtctct	gtatctgctt	cagaagtctt	300
ccaaacgcaa	acggagctgt	gtgcctcgcg	gtagccaaag	cggaagccgg	cacctacatt	360
ttgggagaaa	gcgaagagtt	cgagctcctt	acgatctttc	gatggtcgcg	cttcttagcc	420
tcttccaaaa	gctcgagata	tcaccaaca	tctttttctt	tgggaaagag	attccataga	480
ttcgtgtcag	tgttttctct	tttcgtcgcc	gcgccagtaa	gctccggcta	cacttaaaac	540
ttgatcgctt	taatgtaacc	ggtattgggt	aagtgaggac	cgcgacaag		589

(2) INFORMATION FOR SEQ ID NO:873

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1123 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1123

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:873

aatgatccgg	aagccgatga	agcgcgtctt	tacggcgcaa	tcccgatatg	caggcgtcat	60
tcatttttgc	tgcaagtaag	cccgtaggcg	aatcggtgag	aagccgcttt	tgtactacag	120
gancaatata	ctctcactgc	tgaatatctc	gaactgatgg	agcgattcgg	cactcgtggg	180
atcgtatttt	cctcatctgt	acgggtgtacg	gacagccgga	ggtattgccc	gtaacggaag	240
aggctcgata	caggaagctc	tctctcccta	tggcaatacg	aagcaaatca	acgagagatt	300
atccgcgatg	ctatccatgc	cggagcaggg	tacaaggcta	tactctgcgc	tacttcaatc	360
cgatcggggc	acaccccacg	gcgcataatc	gaagcttcct	aacggagtgc	cacagaatct	420
gatacccttat	ttgactcaaa	cgcagcaggc	atcagagccg	aactgagcgt	cttcggcgat	480
gactacgaca	gcccgcaggg	tcttgatatc	gggactatat	ctatgtgggtg	gatttgGCCA	540
agcgcagtgt	gctgccatcg	aacggatgct	gaatgaagag	aaagcgagga	ttcgctcgaa	600
gtctttaata	taggtacggg	taggggcgtg	agcgtgcgga	gcttatccgt	accttcgaac	660
gggtgacagg	cgttgctgtt	cctcatggat	agtaggaagg	cgCGAAGGCG	atatcgaaca	720
ggtatgggcc	gagccaagaa	agccaatgag	gtgttgggtt	ggaaagcttt	ggagtcgttg	780
gaagcacact	gctgagtgca	tggcgttggc	agcaacgctt	gtcggagaag	taaccgcagc	840
ccattaacgc	acccgatacc	ctatcttctg	gcagatggac	atctatcgac	caaaatcact	900
tacctgaccg	gcgtagggcc	gaagcggggc	gagtactgaa	ggaggaaata	gaagtacgta	960
cctatctgga	tcttctccat	attttccctt	tcgctatgtc	gataggagtc	gattttatgc	1020
catacgggaa	tacgctccga	tatgccctat	atccagcttg	cgCGGtGtcc	ttcgcaactc	1080
tccgaggtgg	gcgaaggacg	gcgcaagcgg	ctgacgggcta	ctt		1123

(2) INFORMATION FOR SEQ ID NO:874

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 579 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...579

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:874

ggttcctccc	caccatctat	aaggcgcgcc	agccagtaaa	tagccgcgtg	ggatcactgc	60
cccgaatact	tttgataaag	gcggatgcta	tatcataggg	agttcgccctc	ccttgtcgaa	120
agcagcgggg	ttttcttgca	agcgcctgct	atcttttcgt	tggtaatgac	gagccggtct	180
tccacttcgc	ttgtggcaga	aggtcgagga	tgttcagcag	ctttcgtgca	tcgcctccgg	240
cataggaagc	agagcttccg	tctcctccag	tacaggatgc	ttggcagcca	gcagtcgtcc	300
cgatcgatag	ccctgtgtgc	caagtagcag	cagatcctca	tcatttgagg	tttgagcaca	360
tagacctgac	agcgcgatag	gagcggacgt	atacttcnaa	actcggattt	tcggtcgtgg	420
caccgatcaa	gcgtcactat	tctcgctcta	cggctgccan	aagtgaatcc	tgctgactct	480
tgctgaaacg	tgtatctcgt	cgatgaagag	gatggcgcgt	cctcctttgt	cgaacaggag	540
ccacgatgga	ttcgatgtcg	gctattactt	cccgaacttc			579

(2) INFORMATION FOR SEQ ID NO:875

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 581 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...581

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:875

ggctctaaac	ctgcaaaccg	ctttcgagca	gataagacct	ccggacacat	acagaaatca	60
gcgtgatgca	atggatgata	tcttctatgg	aagcagcact	gtgaatggta	gcacaagaga	120
ataatctttg	ccgagacagc	gaaaatcatc	tcggtgcgat	tatctttcga	ttccaatctg	180

cacacataca	aatgagttcg	ggcttcgtcc	ggctccatga	aactccggct	cttgccaaac	240
cgcagaagag	atagcagcag	ctatctcttc	gcagtcgccg	ttatagacaa	tagttgacaa	300
tggagaaaca	agcggagctt	ttcctccagt	ttcgttttta	tatcggaag	ttctcctgat	360
gagcacctcc	tatattcgta	atgataccat	acaggggcat	attatgctct	ccaaacgttc	420
catttcccc	atttgcgata	tccggcctca	aatataccga	gagtgtgttc	ctccgccatt	480
gccatacgga	aggggtactc	ctatctgcga	gttatagctt	cggggcgagc	ggacaatgca	540
tagtccttgc	gcaataactg	ataaaggaac	tctttgacga	t		581

(2) INFORMATION FOR SEQ ID NO:876

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1029 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1029

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:876

ggatgatttg	gccaaggctt	atggcgatca	ccagggtgtt	tccggagctc	atacaccatc	60
gaaagaggcg	aaaagggtgg	tttcgtaggc	aaaaacgggc	cggcaaaagt	accatgggtca	120
agtgtatcat	gggagagctg	acagactcac	cggcaagctc	gaactggggc	acaacgtgca	180
gctgggctac	tttgccaaaa	cgaagcccaa	gagctaagag	gggatctcac	ggtattcgac	240
acgatgaccg	tgaggccgtg	ggcgacatcc	gtctgcgcct	gaacgatttg	ctcgggcttt	300
tctcttcggg	ggcgaagcat	cggaaaaagaa	agtaagtgtc	ctgggtggagg	agaacgagca	360
cgattggcta	ttatcaggct	tttgctacag	ccgctaactt	ccttattctc	gatgagccga	420
ccaatcacct	cgatatgcgc	tgaaggatgt	actgaaagag	gcgatcaaga	acttcgatgg	480
gactgtcatc	tagtatctca	cgaccgtgag	ttcctcgatg	ggcttgtcag	caagggtgtag	540
aatttgcaga	tggacagggtg	aacgaacacc	tcggagggtat	atacgacttc	tccggacccg	600
ccgtatgcag	acgctgacag	agctggagcg	aaccactcga	tcgaaacaaa	aaccacacgg	660
gaggctatac	ctgaaacgga	agccaagcgg	actaccgtcg	gcaaaaggag	gtagccaaac	720
agctgcgcac	gttgggcgaa	ccgtagcaac	ctgcgaggag	cggatcggaa	aattggagtc	780
ggaatacagg	caatagagat	gctactgcaa	gatccgaaac	atgcgactga	cgcaatctgt	840
tcgagcgata	cgccggcatg	aaacaagaac	tcgaaaaggc	caggaggact	gggaacaggc	900
ttccgaagct	ttatccgaag	cccaaggata	actcaacctc	ccccctctct	tctctcctcc	960
tttaccaga	gaccatctca	caccaatcta	ttagaagctg	agacaacctt	tcgccatccg	1020
tccgaaagc						1029

(2) INFORMATION FOR SEQ ID NO:877

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 545 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...545

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:877

tgaacaaaga	agctctgtcc	tatcgtttgg	cgggcaagga	cattgcagag	tgaatgcaat	60
ggacatcaag	actcttattg	aatgggtaga	ttctctgggtg	aacatctgtt	ggatacgcaa	120
cgggctattt	ctatagaaat	actgaaaaga	tacggacacg	cttgggggttt	cttaaagatg	180
tggggttgga	gtacttacga	tgaaccgagc	tgcagcatcc	ttatccggag	gagaaagcca	240
gcgtatcggt	tggctacgca	gatcggggagc	aaactgggtt	aggctcttga	catatggatg	300
aaccgagtat	cggctcttcac	caaagggaca	atcttcgggt	gatcattcgc	ttcaggattt	360
gcgtgatata	ggcaatacag	tggtagtggt	gggcatgata	aggatatgat	gctgcacgcc	420
gactatgtaa	tagacttagg	acacgagccg	gcagacatgg	tggatgaagt	gtgtttgcag	480
gtagtcgga	gagatgggtc	aggctaatac	cctgactgcc	gattatataa	gtggacgaag	540
cgatat						545

(2) INFORMATION FOR SEQ ID NO:878

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1088 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1088

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:878

gtcgagttgc	atagcgaact	cggcgggtgc	cttgtctttt	ggaatgagtt	gggaacctta	60
tttcggacta	ttcatcatag	gagaaaatgc	tcttttgctg	aaaccggatt	ggcatacggg	120
agataagaca	aagataatag	gagagtgggg	gtaaggagca	taaattggatg	aatatacgcg	180
ttcattatta	agccgtttta	attcggatga	taagtgttag	gatagagata	tttagcttcg	240
ttgaatcggt	tgtgtttttg	caaattgtagc	caattcctgc	gacttccaag	aggctgatga	300
actatgtgtg	tcatattgtg	ctgtcctgtc	gattgtctcat	aagagggcag	gggatggccg	360
ttgctcgaca	tggaaataag	agagctttgc	tgatgtctaca	taagggtgtc	tatttggtac	420
gatgtacggg	gataggcttt	gttttttccg	taagtttgta	ttgatattgt	ttcttgcata	480
cacattcaaa	ctattgacag	catggcaagc	gaaagaaaac	tgaaaaagca	gataaccggg	540
ccatttccga	agtctttact	gatgcattcc	tgctcaaact	ctttgtgaag	aggaaaaaaa	600
cgcagagggtg	gaaactatcc	tcaatcgtat	tctccaattc	aagataccac	cattgccaa	660
attcgttgca	acgacggtaa	gcacaacctg	cactcgtaaa	gaaatattat	cgcgggtcgc	720
tggatgattt	caaggagagc	tgtccgagat	cgtgaagagt	atttcggcgt	gtgcgtctga	780
taatgatttg	tcacttacgt	gcattaagca	gaaatagcgt	aacatataga	ggtttttgaa	840

gtttttctca	cgattgttgc	tcaggatgat	gggctggaaa	gcctcgtccc	atctgcaa	900
ccgctccaaa	gcgtcatttg	cgtggctcct	ctaccagcaa	ttacgacttt	ttgctgggca	960
aactctacta	ttgggtctatc	gtcggaaaagc	cggcttcctg	atgaaaaagg	aatggttttt	1020
cttccctttg	gaccgatctt	cagggctatg	ggaggtatcc	cgatcgatcg	ctcgaagcag	1080
gttccact						1088

(2) INFORMATION FOR SEQ ID NO:879

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1856 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1856

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:879

agccggtatc	gtagtgaaga	aaggattgct	gtaccgcaag	agaaatggta	cataaccctg	60
ttcagagcaat	tctatggcat	gccatttggt	gtagaactcc	ctatcggctc	catacgtacg	120
accgtgagca	ctttgggtctt	caccctctcc	cttcaagagc	agagctgaga	gccaagctgt	180
tgattaccgt	ggccagatac	ccatctgatc	tcctttgaca	cggtcgaatc	ccttggcggc	240
accgccactc	cgcggaagat	attgcctcct	ccgatgacga	tgccgatctg	tacgccatgg	300
cacaagcctc	cttgatgtcc	gaagcataat	cggccaaccg	attgggtcga	tgccgtattg	360
ctgagcacc	atgagcgact	caccgctcag	ttgagcagca	ctcgtttata	tgcagtcatt	420
attcttttct	atcagtttgt	tcaaagaaaa	gcatattttc	cataccccat	tcgtcgatag	480
acgctgtcga	tggtctgttt	cactccagac	gagagagcat	ctcttcgccg	agagcacgct	540
tttccggatg	tgtctccacca	cctcgacgat	gaagggtattg	ctttcgatc	gcctcgcacc	600
tcatcgaaat	cgcggtgttt	catctccct	accaggttat	tccgaagcct	acctgactgt	660
gcatttgga	ttccttcttg	gcattccata	gagcatctca	tccaagcgaa	tcaccgaacg	720
catccatgta	tgcacagttc	ggctactttg	gatcgagtga	gatcctcggg	gttcagttcg	780
taccttcgag	cagagcgttg	tatgcccagc	accattcata	gtcgtagtat	cggtatgaat	840
ttccttcatc	cgtcatttca	cctccgcaag	gcttttgatc	ttccttcttt	gatcaaggag	900
gcaaggcggt	ggatctgttg	ttgtggagcg	acatgccaca	gatgtccacc	cagctgccgt	960
ctccctcatt	gtgagtcggc	tgagagcact	cagcacctcc	tcattccgtac	ggcaaggaca	1020
atcttcaagc	gtttgatgat	ggaattgccg	aaaaacttgt	tcagccccat	ctcatagaca	1080
tcagccctct	gtccaaggca	gaagaacgta	tgcgcatatc	atgatagcat	aggtttgtcc	1140
ctcactgccc	agtatcttgc	gtagcttttt	cagcttcgac	tgccgcgcac	catcttgccg	1200
gcagtgaaag	gactcaagag	attgagttga	tattgtccag	caaattccgga	tctttacgct	1260
tatctctcgc	cggcacttct	tggcgtcacg	aatcgtcccc	acactgcgda	gatcgatacc	1320
cggaccaaat	acgattcggt	acggctcctc	atgatataag	agaaggggaa	ggcgagctgt	1380
caatatgggtg	tacgtgtcga	cccatcacca	acgtgaaaag	gcctattctg	gatggccaaa	1440
ggatataaga	gtcgtctcgtg	gtcttcgagc	gcgtccacg	atgccctgat	ggatggggcc	1500
gagctttag	aggtgattgt	ctggttagag	ccgctgccgg	cattgaggaa	agagtataga	1560
ccggcaatag	caggctcgac	ttgtgcatcg	acacggtata	tggcccggca	aagacggaca	1620
ggcctcgccg	ttttcgctt	ggcagttggc	aaagaaaagc	gaatcagtg	agagaaaagg	1680
tgccccaaat	gagtaccctg	ccctacaaaa	cagtggaaac	ggtagcacca	tccgtaacgc	1740
tgctgcccga	acagagaatg	aaatgcggca	gacgacattg	tagcctaccg	acacgggggc	1800
ctctttcttg	ctatgatact	gccgttcgag	agatgcgagg	cacccggtga	tctcgg	1856

(2) INFORMATION FOR SEQ ID NO:880

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1025 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1025

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:880

ccttagctgt	cccgtcgagc	ttggtcacgg	caagggcatt	cacttcagtg	ctgcgggtgaa	60
ctgccttgcc	tggtcgaaaag	cattctgacc	ggtggatcgt	ccaataccaa	taaaatctca	120
tgcgaggcgt	cgggcactac	cttctgtca	cacgcttgat	cttcgtcagc	tcgttcatca	180
gattgacctt	attgtgagac	gtccggctgt	atcgatgatc	acgacatcga	cgccgtagc	240
cacggcgaac	tgactgtgtc	ataagccacc	gaagccggat	cgctacccat	ctgcgcttga	300
tgataggcac	tcctactcgc	tcggaccaga	tctccaactg	ctcacggccg	cagcacggaa	360
ggtatcggca	gccccgagca	cgacgctctt	gcggcctgac	gaaagcgatg	tgccagcttg	420
ccgatggtag	tggtccttgcc	tcgccgttta	cgcccactac	catgatcaca	taaggtttgg	480
taccggagggg	aggctgaagc	tgtcgccatc	ggccgatccg	ttctccgtga	gcagcgaggg	540
atctcttgac	ggaggatagt	cgtcagctcg	gaggtggaaa	catatttgcg	cgagccactc	600
gttcctctat	acgtttgatg	atcttcaatg	tggtatcaca	cccacatccg	aagtcaccag	660
cacgttttcc	aattcgtcca	agacctatcg	tccactttgc	tcttaccggc	tacggcacgg	720
gtgatcttgg	cgaatcgttt	tctttgggtc	tggaacaggcc	ttcgtccaaa	gtctcttttt	780
tcttttcgag	aataatccga	ataatcccat	atcgtatata	ctgttatatc	tctccttagt	840
tcattctgtt	cttgtaatcc	tcataatcga	accggcgcaa	cactctttct	tcccgtcggg	900
gcgcagcagt	acgatgtccg	gatggcgtgc	acgttgaaca	tgtcgtcttc	accgcggtag	960
tgagcatgt	ctcgaatatc	gtcatcgcca	ctgcacgcga	tcgaaactca	gtcaccgatg	1020
aagcg						1025

(2) INFORMATION FOR SEQ ID NO:881

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 490 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...490

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:881

gggatctctg	ttctatactt	ttcagacgat	gagttacatt	atcgacatta	tcgaggtcag	60
gtgcagcctc	taaaacgttg	gatagattac	gtcttctagt	ctctttcttt	ccccagctgg	120
tagccggccc	catcgtccgc	gcccagatgt	cattccgcag	atataccgcc	gtccggtggt	180
ggaaggagg	gaatatccga	agccctgatg	ttgataatgg	gaggtctctt	caagaaagcg	240
atcattcggg	ctatatcagc	ctgaactttg	tggatcgcgt	gttcgatgct	ccaagcttta	300
caccggattg	gagaacctta	tgggggtgta	tggctacgcc	ctaagatcta	ttgcgacttt	360
tccggttatt	ccgacatggc	tatcgggtata	gcctgggtgct	cggcttcgcg	ttcaatatca	420
atttcgattc	accttatcag	tggccaatat	caccgagttc	tggcgcaggt	ggcatatctc	480
tctttcgta						490

(2) INFORMATION FOR SEQ ID NO:882

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 648 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...648

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:882

gcaaggagtt	cggcttcggc	tttcgctatg	gaatcctgcc	gagctgcttt	atcgcagcct	60
tacgctgcgc	ttctatattc	tgcggatcgg	gacgattggc	catgaaaacc	caaagatcac	120
cagtccgata	agaactaaac	ctataacgta	tttttatcca	tatatatttc	ttgcgtaggg	180
attcttcggc	accgactcgg	caccctatc	ttgttgcttg	ttcgtacagg	tatgtcagag	240
gggagaaaaa	tttcacaccc	ccccaaagaa	ccgacaggca	aagcgattat	tcttatcttt	300
ttttctcggt	ttgattgctt	cacgaatgaa	agccatgaac	aagggttggg	attgaccacc	360
gtactattgt	attcgggatg	gaactgtacc	ccacgaacca	gcggcaggca	ggcacttcca	420
cggcttctac	caagcccgtc	tgcgattctc	gcccacacat	tgcataccgg	ctttttcgaa	480
agcttcgcga	actggctgtt	gaattcgaag	cgatggcgat	ggcgttcgcg	cacgaattct	540
tgccataggc	agcagccaat	ttcgatcctt	tgcgcagagc	acagtcgagc	gccccaaacgc	600
atggaaccgc	catatccgta	accgctctgt	cgatcgcggg	cgtgacct		648

(2) INFORMATION FOR SEQ ID NO:883

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 386 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...386

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:883

atagggtgag	cttatcgag	gcgttcggct	gcccgtatca	tggtttcatc	gctcctatgc	60
cacgaatggc	cagatagtgc	aggatgatgg	agactatcgc	atgcagagcc	aaaaacggaa	120
tccgaactcc	aagttctcag	ccgagcaatc	tgccaaatct	gcatccccag	atagataaga	180
aaacctatcg	tgacgagata	ttgaagatac	atagtctgat	ctgcaagatt	cgctttttgt	240
agaggagatg	gtagcaaacg	agatcagtac	gataatggca	tcaagagcaa	aaagccccc	300
gtggacttga	ccagcgcatt	ggtagccggg	gcatatagtc	ctatatggtc	atcgcgtatc	360
cttggccttc	cggccttatt	aaaagc				386

(2) INFORMATION FOR SEQ ID NO:884

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2415 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2415

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:884

tggtttccac	ttgactccaa	gcgtattgac	ggcttcctgc	ttgtccacga	gccgttgtat	60
ttgagcacac	cccagctaaa	tagcaggaca	aaaactgcat	aatggcaatg	atgattactg	120
ttcctttttt	catattcatt	ctatgttacg	ttactattag	gtttatctga	atgtactact	180
tacgacgtct	gacagggttt	tgtctttctt	gaccgaccag	ccgaaatagc	cgagaaaagtc	240
cccaacgaga	agtattcgcc	atgcgaatat	gccagcagggt	ttgctttctc	catacgaaaag	300
aacctgtctc	cgggttgata	tattgttcgt	cggcacggat	attaccacat	cggccataaaa	360
catgtcatgg	ctaccgagtg	gaatgacctg	tctaccttgc	actctatgct	gaccggcgat	420
tccggccacca	aaggagcttt	gtcagcttgg	ccggctccac	ggtaaggcct	gtctcggcaa	480
acttgtcata	tccttgccc	aacggacacc	gcaccagtc	gtctgtctgg	ccatgccgac	540
gtagtcagggt	tcaaaccgaa	ctcgccactc	tctttgatga	gagcatagag	tgacgctccg	600
ggcgaatact	gacatagcac	ataggcggct	ggctgcaatc	gtccccaccc	aactggccgt	660
aagcaaatta	taatctctcg	gccggggcca	caactcacca	atatggccgg	tagcggatag	720
ataagtgtgc	cgggttccaa	tcttgctcca	ttgtttcatt	cttagaaaac	ttacgcaaac	780
tatacaactc	gatcggtca	ccggctagtt	ttcgctcgca	gtagtcgcat	cgagggtgca	840
ctgctcggca	tctatcacac	ggaatcgggt	ttgcatcggt	tcttgttcgt	aatacacttc	900
ggattcggac	aacggacgag	acccacaatc	tgtgtgggtac	ttccacctga	cgtttttcta	960
caacttcata	gtcccgaata	tgttcaggcg	cacattcggg	gcaataagag	cgatgcgggt	1020

caattcctct	cttcgaaagt	cttgtcctct	atcttgataa	ctcctttcga	accatggccc	1080
gactgcgcaa	attgttgccg	atgggtgatcc	gcttggtccaa	atcatccggt	gcaggagagt	1140
agccaccttg	aacagtttcg	tcgggggggat	atgggtcatca	cgatgccgtt	tctaatacgcg	1200
gcgacgagca	tttcttcctt	tttcatacaa	tatctgctta	gtttgcaacg	tctatgccga	1260
gcacttcaca	aatgtggact	gcctcgtata	aagcccgttc	agtgcctgcc	ggataaagta	1320
ggcttgggat	tgtcatccac	atcataggca	atctcccca	cacgaggtag	cgatgcagta	1380
cgcgcagatt	cggacggctg	tcggacagca	tagcgttggt	cgcacataga	catctttgac	1440
ccgttcatat	tcctccagat	ccgtaaaccg	tcacgttgta	ctcgtgtcat	gtagagaatg	1500
tcgcagttgt	tgatcacctt	tcgtcgaaat	gtttggtttc	cgtataaggc	agatcatgct	1560
ctcgacaaac	tgcttgattt	cttccggaag	agacagctct	tcgggagcaa	cgaagataaa	1620
cgaggcgga	agtgcgacat	accctctatc	agagaatgga	tagtactcca	tacttgagat	1680
cccctaccat	agcgatagtc	ctgtcataca	gcgtgcctgt	gttttgcgaa	tggaatagag	1740
atccaataaa	gtctgtgaag	gatgtgggtg	gctccatcgc	cggcgttgac	taccggcaca	1800
cggcttacct	ccgagcataa	cgagccgccc	cttccagata	gtggcgcata	ataatcagat	1860
cgcatagttg	cccaccatgg	aaatggtatc	cttgagcgat	tcgcctttcg	tgagctggag	1920
gtggatgcat	ccgaaaaacc	gatgatacgg	cctccgaggc	gttcacagcc	gtctcaaaac	1980
tcaggcgctg	acgggtagaa	ngctcaaaga	aagagtggct	acgaccttac	cctccaaaag	2040
gtgccgattc	ggattctttc	gaatagctct	gcccgatcga	gaatgcnaag	aatgtcctcg	2100
gncgaacctg	gtcaatagat	acnatatgct	tcattcttta	aggagtataa	ttgattaatg	2160
atatggacgg	aagcaaagct	cacttcaaag	cgaaagaagc	cttaacgtta	tgcttgccgt	2220
cttcatcttg	gaagacgtat	tgaacgaacc	tcccagctat	aatcttcgnt	cgagttgagc	2280
cccactatct	ggaacacgcc	catgaagaag	atagcatctt	acccacggag	gaaccgctcc	2340
cctccgcaat	gacgaacacg	attgaaagcg	tcttcgaggc	attgcgcagc	atctccacct	2400
tagatcattg	agctt					2415

(2) INFORMATION FOR SEQ ID NO:885

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1116 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1116

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:885

tcagcagatt	tggttggtct	ttacggccaa	aaagcccacg	ttgggctatg	cctataagta	60
tcagnccgag	cgagttaggt	ctcgtctgca	gcatgtaact	atcaagtagg	gcgtacgggg	120
ncgggtcacac	ctgtggccaa	tctcgaccag	tactgatatc	cggtagcggtc	gtgagacgcg	180
ccagcttgca	taatgcgatt	ttattgcgga	gaaagacctt	cacgagggag	actttgtcta	240
tgtggaaagg	gtggagagat	cattcccaag	atagtgggtg	tggatacggg	tgcagcagta	300
tcgatggcag	acctatagtt	tttacagtgc	tctgtccaga	ctggctacac	cattgggtacg	360
cgaacaggga	gaagctgcct	attattgccc	gatgccgagg	gctgcccaca	gcagcagaaa	420
ggacggctcg	aacactattg	cgacgcaaga	cggcagacat	caatatcggc	ccggagacga	480
tcgaattgct	tatagccgca	atatgattcg	taacgttgct	gacttttatg	cccttacgga	540
gagcagctac	tcactctgcc	cggcttcaaa	aaacgggctg	ctgccaaatt	ttggacagta	600
tcgaagcctc	caaagcccgt	ccgtatcagg	ccattttttc	ggattaggta	ttcgctttgt	660
cggagaaacc	gtagccaaga	aacttgtgcg	gtctatcctt	ctatcgatgc	cctggctgct	720
gcgacgagcg	aggaatagta	cagatagacg	agatcgggga	aagaatagct	gctgctgtac	780

ttcatttttc	agccttcggc	agaacagggg	gttgatcgaa	cgacttcggt	tggcgggtgta	840
tcgttggaag	ctgagacagt	ttccgtggcg	gtttccaatc	gtagccgga	aaaacgggtg	900
ttatcagtg	tacatttgaa	aagcgtagtc	ggatgagtac	aaaagctatg	gtagaggaca	960
atggcggacg	tatggcccgg	tcgggtttcg	tccaagaact	tctttcattc	ttgccgggat	1020
cggatattgg	gcccgaagtt	agagagagaa	agctgagaag	ctcgggtgtgc	cggctgatag	1080
tgaagaagga	tttcttcgc	tgatagaaga	ataggt			1116

(2) INFORMATION FOR SEQ ID NO:886

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 621 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...621

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:886

gagacacggg	ctgtagcttc	ggctgtcttg	gattgggcga	ttgtgtggag	cctgcggatt	60
cgatgctatc	cgcatcaacc	cgacaacctt	gctgccggag	tgggtggagga	tgcttgtagc	120
gcatgtggtg	cttgtgtcaa	ggcctgtcca	aatcgatcat	cgaactccgg	aagaaaagggg	180
cctaagagcc	gccgtacttt	gtagctgctg	tgaacaagga	caaaggcggg	gtcgccaaga	240
aagctgtagc	aatgcttgta	tcggctgctc	gctctgcttg	aagcaatgcc	aattgaggct	300
atcaccatcg	agaacaacct	ctcgtaata	gaccacacca	agttcgcatg	tgccgcaagt	360
gtgtggaagt	atgtcccacg	aatgccatcc	acagctgaac	ttcccaccga	agaagaaaagt	420
ggagccgggt	gtcgccacag	agctgccgca	ccggcacaag	agactgtcta	aggaataaat	480
aacaacaaag	ccacatagaa	ttattatgtt	gaggactttc	cgaatcgggtg	gtattcaccc	540
cccgaaaaca	agttgtcggc	aggcaagccc	gtagagggtg	tgccatcccc	tnacagtagt	600
catccctctt	ggtcagcaca	t				621

(2) INFORMATION FOR SEQ ID NO:887

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 582 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...582

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:887

cggtttggat	ttggctctcg	gtgtaggcgg	ttaccctcgc	ggacgtat	cgagatatac	60
ggaccggaat	cttccggtaa	gaccactctg	gctatccagc	cattgccgaa	gcgcagaaag	120
caggtggctt	ggcggccatc	atcgatggga	acatgctttc	gaccgcacct	atgccgaaaa	180
gttgggctgc	aatgtgataa	tctctggata	gcacagccgg	acaacgggtga	acaggctttg	240
gaaatgccga	gcaactgatt	cgctcttctg	ctgtcgacat	tatagtcatt	gacttgtcgc	300
agccctcacg	cccaaagcgg	aaatagaggg	tgaaatgggg	gacacaaggt	tggtttgcat	360
gcccgtctga	tgctgcaagc	actgcgtaag	ataccggagc	catcagcaaa	tccaatacaa	420
cctgtatctt	catcaaccag	cacgagagaa	gatcgggtgt	ttgttcggca	atccggagac	480
caccacaggg	ggaatgcact	gaaattctat	gcatccatcc	gcacgcacat	tcgcaagaga	540
caccgatcaa	ggatggcgaa	gagatcatgg	gacacctgac	ca		582

(2) INFORMATION FOR SEQ ID NO:888

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1545 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...1545

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:888

gccggcaaaa	tcctgattcg	aagcgatcta	aggaaaagaa	agaaccctcc	atcatggcaa	60
aaagcatcca	ggcatagggtg	cctaatagat	agaaaaggctg	cgcagggtca	gaacatcctg	120
tatggtttgg	agcgtatggg	tagagggtag	cttggcgaaa	tctggtacat	aggcatcccc	180
ccgaagagac	tggttgccaa	taggagtgtt	ctcctgtctg	tgccctccaa	tcgcgtacgt	240
cctgcccgtg	ccgctggctc	ccgctacgtc	gccctggaac	agtacacgcc	cgtcaatgag	300
gcgggataga	aataggccaa	agcgagggtc	atgaaaagga	gtagaccgca	gcataaggta	360
ggatttttgcg	ccaatcaggc	tttgtcttat	cgtgggtggt	acggttccgg	cagcagctgt	420
cggcttttctg	ttttctttca	tatgtcgttt	gtttttcggg	tacaaagtta	aaaaaccatg	480
tgattggctc	gcctacgacc	aactgcttct	ctgaacgttg	agcagagaag	tatcctccga	540
cattgttatt	gstatgcaaga	ggtcagaaaa	tgagcagttc	aaaccttgga	caagctctct	600
ccctatttcta	tatacatatc	tgaggacaaa	gcgaaacatt	gaggaaagag	gcggcatcca	660
tttgtttctt	gccgggcatt	tggagcagag	tatacgtatg	acccctttgc	gtgtcatcac	720
gtcgagggtt	ttcttgccca	tatgatggag	ccgaatcggc	ctctgtgtcg	cggttctcgt	780
ctatacttgg	gtaccgtata	ttttcagcac	gatggactca	tccttggacg	atgagcttgg	840
tccaagctgt	aggagcaggc	gatatgctgc	ggatgaaatt	gttacctctt	cagccgggtt	900
gtcccaatcg	atacggcagt	cgtctttgaa	atcttcggag	ccggtcgagc	atcaacatag	960
cccggaaagt	gctcctgagg	atggagacgg	gttctccttc	gagaaacaag	tccactgtgt	1020
gcaccaatag	gatgcaccga	gagtagccat	acgttcgtac	aattcgccga	aagtctctca	1080
tgtcctatag	gcaacttctc	ttgcagcagt	acttcacccg	tatctattca	tgcgggaggc	1140
ggaaggtggg	aactcccgtt	tccgtatcgc	cattgcctatc	gcgtgggttg	taggggctgc	1200
tcctcgatac	atgggcagca	gagagcatgc	agattgattg	ttcccatggg	gggcatttgc	1260
catacggagc	gaggagcata	cggaaagcca	ctacgatttg	cagtgcggc	tgataagtcc	1320

gtattcatcg	agaaaagatt	cctcgttcag	attgtccggc	tgagagaatag	gcgacccaat	1380
tcctgtgcgt	atagtttgac	catactggga	cttaccttat	gcctcgaccc	ataggcttgt	1440
ccggcatagt	gaccacagct	tttacttgg	tccgttttcg	accaaagctc	ggagtgccgg	1500
aacagcaaaa	tcggccgttc	cataaaaaatc	aatcgtagtt	cttct		1545

(2) INFORMATION FOR SEQ ID NO:889

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 626 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...626

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:889

gtggctccgg	aagcgatcac	agcttcttgg	actatatattt	ttcgtttagag	gtggagtaca	60
ctttgagcaa	aagcgtatatt	acacaagacc	ccaaaaacga	ctatcaatag	agtagacctt	120
tcattaggca	gtacatctcc	ttctcttgat	ttaataacttg	gccactaatg	ggagtcgtat	180
tcgaaatgaa	taagaacttg	atggcttcga	cattggtttc	atttccaact	ttgtggacta	240
tgatcccgct	atgcgtggtc	tgaaccgata	ataatagaag	aagactgtgg	atggctgatt	300
ttaatccttt	gngagcacta	agtatagaga	tccaaatgat	gttgatgaca	attcggataa	360
taccgtgggt	ggagaacgct	cccataactt	ccgatcactt	acccgggcca	ttacgtatat	420
ccgaagcaat	ctttcaatta	tctcccgac	atacaccgac	aaagaaagat	ctggtcttta	480
aacactgtat	ggtattccgg	ctttggcata	ccgataagga	aggcgatcgt	tatctggaca	540
cttttcaaga	tcaccaatct	aatgagatac	agatgggatc	aaatacgaga	cattactctt	600
tttatggttg	gagttgnca	tatgta				626

(2) INFORMATION FOR SEQ ID NO:890

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1327 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1327

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:890

ggccgactgg	gcttcctcac	cgatgtcgat	tgccacgagg	cttcggagcg	atcacacgcc	60
tgctggacgg	cgacttcacc	atcgagaccc	gttcctctgt	gaagtgaccg	aagacaacgg	120
ctcctctccc	tcctacgccc	tgaacgagca	gccatactca	agcgtgaaac	cggttcgatg	180
attcgggtga	atgcctcctc	aacgacgact	atctggcggc	ttacgatgcc	gacggcctcg	240
tggtgccacg	ccctccggct	ccacagccta	ctcgtcgagc	gggaacgggc	ctatatcatg	300
cctgcctgtc	ggaacttcgt	ccttacgccc	atcgccccc	actgctgaat	atgcgtccgc	360
tggtcgttcc	ggacgacacg	gtgatccgcc	tcaagtggat	tcgcgcagtc	ggaattacct	420
cttggtgctc	gacggacgaa	cagaacgttg	ccctgcgata	cctccatcct	gctcaaacga	480
gctcctcaca	gctgcgaatg	atccgtctgc	gtccgcactc	cttcgccgaa	accctgaggg	540
taagctcatg	tggggagcag	ccgtaagata	aagacacttg	cgacggtgac	aacgagccaa	600
cggacactta	ccatagacta	ctcccataat	ggaagaaata	caaccatggg	gctgcgcacc	660
gaagatctgg	tcaaacgcta	ccggaacgta	cggctcgtgaa	tcacgtatcg	atagaggttc	720
ggcaaggaga	gatcgtggga	ttgttcgggc	cgaacggagc	cggcaagacg	acgactttct	780
atataccacg	gggctgggtcg	tccccaacga	aggacggata	ttcctcaatg	atcggacatc	840
acccaatacc	ccgtctacaa	acgagcgcgt	gccggcatcg	gcctctggca	caagaggcat	900
ccatattccg	caaaatgtcc	gtggaggaca	aatcctctcc	gtcctcgaaa	tggccggact	960
gccccagacc	tatcagcacg	aaagctggaa	agcctgatag	ccgaatttca	ccttgagaaa	1020
gtacgcaaaa	ccttggcgac	cgctctcccg	gcggcgagcg	acgccgtgcc	gagatagccg	1080
ctgcctggct	atatcgcttc	gcttcatcat	gctggacgaa	ccctttgcgg	tgtcgatcct	1140
atcgccgtac	aggacattca	ggccattgtg	gccccaatcaa	ggacaaaaac	atcggcatcc	1200
tcatacccca	ccacaacgtc	cacgaacgct	tcagcatcac	ggatcgcgct	tacctccttt	1260
tcgagggcaa	agtgtgtatc	agggcacggc	cgaagagctt	ggctgcgaac	gaagtcgtaa	1320
gggaaag						1327

(2) INFORMATION FOR SEQ ID NO:891

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 316 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...316

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:891

gggtttctca	agaagcacgg	tggtggacat	cgtagagcat	caaggcattc	cactgctatc	60
gtggatgtgt	ccttcacctg	ccacatgccg	gactgtctga	gatgccttac	aaacccgtca	120
ttcgtggagc	gcatcaggag	ccggtaccgg	cctgccca	tacaggatag	gcggatgcag	180
ctgtctgagc	ggcgactcat	cggtgactgg	agtttcgatc	ggccgttgca	ggtgggcgat	240
gaactatatt	cgaagacatg	ctccactaca	cgacggtgaa	gaacgaccat	gttcacggtg	300
cacgccatcc	ggacat					316

(2) INFORMATION FOR SEQ ID NO:892

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2872 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2872

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:892

gctcgggacg	gatttccgtc	ggcacctgga	aggtagcacc	accgatacgc	ggctcttcac	60
ttctacctga	ggagtgatat	tatcgagagc	cgccttccaa	tctcgagggc	agacttctct	120
tcgtttgagt	gcttcgtctt	cacgatgcca	aagcaccgta	gaagatactg	aaagctgtgt	180
tcttctttcc	atcataatta	ggtgattaac	gaacttagtc	accctcacat	caccatagac	240
gggatcggca	ggatctgtct	tttttttaggt	tttgcttttc	tcattgtctc	aaaaatttcg	300
tttttgtcga	ttggttgccc	tttcattttt	gtcttcaacg	ctccgccgga	gcatttactc	360
aaccctgttt	aagcctatcc	aattgaactc	aaaccggttc	ttaaataatt	tggtggttgc	420
gcccttgatc	gtagcgcgat	ttagattggg	gaagtgatcc	gtccttatcg	gtctccggcc	480
tcgctcatcg	ggccgacgag	tccgcttagc	ggctcttact	tcttaccttt	agcggcaggg	540
cctgtccggg	cttcggacgc	ttggcaccgt	atttggaacg	acgctgcgac	ggccattcac	600
acctgctgta	tcgagcgtgc	cacgaacaat	gtgataggca	caccggggcaa	gtccttcaca	660
cgacctccac	gaaccagcac	gatgcttggt	cctgcaagtt	gtgacctctt	ccggggatgt	720
aggcattgac	ttcttggaat	tcgtcagacg	cacacgcgcc	accttacgca	tagccgaatt	780
cggctcttgg	gcgtagtcgt	ataaacgcgc	acacaaacgc	cgcgacgctg	cggcacgaat	840
tcaatgccgg	cgatttgctc	ttatccgcga	aagattcacg	acctttctaa	ccaactgttg	900
aattgtaggc	atttcttctt	tctttaaaac	ttgattataa	ttatctcttt	cctaattctat	960
tacactgcca	actatacgag	agtggcgcaa	aggtagacat	atcttcccaa	tccacaacag	1020
tccccgcagt	tttttttcac	ggcaacgctc	taatactcaa	tagtatcaac	cgacatctta	1080
ggccgaactg	ttccgcccga	gcgagagatc	cgaagaggtg	gatgcgcccg	aaaagaaaaga	1140
gaatacaaaa	cagcccgaag	aagtgcagata	cagcgtcagc	cacagaaaag	aaacgcactg	1200
catatattca	cagaaaagaa	acgcattgcat	atattaatgt	acgcgcgcga	gagatgctga	1260
gggcagcact	attcgtccaa	agagagaaaa	cggaaacggaa	aaggacaacc	atccagcaaa	1320
ccgttacgcg	ccacaatttt	ctgtttcgat	gctccgcaaa	acgtggcgcg	ggactttttc	1380
gttttggttc	gggaagtaaa	aaattctcgc	gccacgagga	aaaattctca	taagactttt	1440
cccgaaaaaca	cgcgccgcaa	tcagagcaat	atggttcgag	aaaatcagat	cggaaatata	1500
ccgcccaga	gcgagagggt	agctatgaag	ctgtaccgac	agcctcgatc	gccacaataa	1560
ctaccgcatc	agcgaagccg	tcagagccaa	gaagagcaag	caatagacca	caacgagatt	1620
gtccgccaga	agctccgcca	ccaagagcag	aggaatagct	gcttgtgtcc	cagcaaaaaca	1680
aaaggaatag	gagcaatgca	ggtagcccg	atagcacc	acccgggcat	cgctgtagaa	1740
aggtagggcg	agaacgttca	gcaaaatagc	tggcaggcta	tgtacgcctg	agcgataatg	1800
tgctccgtca	gatataatgt	ccggctcctt	tttgtcgaa	agccgctttc	gtactcacgg	1860
cggaaatggga	agaatactga	tgatcctgac	agccttggtg	ccttgaaacc	attcatcagc	1920
aggctccata	ttcttgaaaa	gaaagggagg	gacttcaacc	atcttctctg	tcggtgacaa	1980
acctcatctt	tttgtaaaaa	aaggctcctt	ccccgtgtgt	cgctccggcaa	tcatttctcc	2040
gctatcgctg	ccgactgctt	attctccttt	tgcaggagg	atatttcttt	ttgatccatc	2100
cgatactttg	acgcgtaagc	tcttcgccaa	tgggcttttt	ctgcaaggga	tcaggtcgat	2160
cagttgtgca	aagatgatgt	acagagaggc	cagcacgaaa	agggctgaaa	gggacgggaag	2220
tagacaaccc	tcttgccacc	gataaagtcc	cgtacaaata	acccgggcgg	tagagcagct	2280
ccacgatagt	acgcccgaag	ccgtgtcgat	attgggtgaag	ccgcctatca	catttcggat	2340
catctgccgg	aatgataccg	tccgggtgca	gaggtttgtc	cgcagcgggt	gcagaaattg	2400
ccgtatatcc	atctccgcag	ttttggcata	tatgtatgta	tgggtctgca	gtggagtgcg	2460
tctgccacgc	atcagtctca	actcgaatgc	gcggattcga	cgcgaagggg	aaagagaagt	2520

gattgcaacc gctgatcgat ctttcttgca gtagtctgcg cttccgtagg attgccccaa	2580
aagccagccc ggtaatgcag atattcccca ttgtcccgaa gtggccaaat cttctattgc	2640
caaccaagga gcgatgcaag catgaggatc tgcaatgagt tggccatttt tctctcgaat	2700
gcccattgct cccgtttttc tgtttcttcg aagtactatc gcgcaacctt ccattttttt	2760
cttcgttttg ctactcgttt gcattatctg aattcacttg cttgcgtaca aatatagtta	2820
tgacaaatgg agggcgtagc acctcggttc ggtcgcttac gggtagctg cc	2872

(2) INFORMATION FOR SEQ ID NO:893

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 542 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...542

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:893

gtaagaacgg gatacagggt cgaaataggg tatgcttatg gcgggtatgt aaactttccc	60
gtctgacggg gtaccacata atactcgatc gtacgctgcc atcggcacc gaagtactta	120
tgcgaaggct gctctcggcc ttggagtgtg ttgttcgaag ctgtcgggaa atctcacttt	180
gggatctccc atcaactgat atttccgctt ccgttaatta cgagcttgag tgtaagggct	240
tcgttgtttt ggctgacgg tcattgaaag aggctgagat ccgataatta ccaaagcacc	300
atcgaatcct tgggggttcg gttcaggcaa gggagcgaca tctttgtgac cggattgggtg	360
gtcagagtcc tccgcacatt ctcatcaggn tgagtacaaa gaagtcact atgtcgtcta	420
tctcccgctg gaccgntact agacacgaaa gttgcccgat ggaatagtca gcttaccgct	480
tttttgagga agagcaacga ctgcttgaga acggttgtct gatagttccg tccttcatac	540
tc	542

(2) INFORMATION FOR SEQ ID NO:894

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 865 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...865

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:894

gtcagattat	gtgcagcctc	ctgtggtaac	aagaactgct	ccccctcgaa	gaaagggtgca	60
ctccatccgt	atcgggtacgc	agaagatgaa	atacgggcacg	cggaagaaac	cgatggtttc	120
tatctgccga	tacaggtcgg	caggctctct	tcgatgtgga	tcactctcac	atacagagtcg	180
tccggcagtt	cgtcggatgt	actccttcca	cggattgcac	ttcgccctct	tccgtcggga	240
tgggacgcca	tgcgggtcga	aaagcggatt	gcccaggcgg	actgctatcc	gctctgctct	300
tcacgggaca	gatagtgtc	ctccttgca	gcttggtgtat	gccttcgctg	ggttcatagc	360
cggagtgttc	ggacagatac	ttttccaaaa	gctgtggcgg	cgaatcacct	tgagcgcata	420
tttccgtccg	ctttcgggtca	gtgcgagtc	ggaggcaggc	agtagccttg	tttgtgcagc	480
agatcgagta	atactgttgg	ttgcttatct	tcagcccgg	cagggtctgc	agtcggtctc	540
attgacgggc	agaccgtctt	cttccaaaga	atagatagct	ttgagcgttc	ttcggacaga	600
cggcgtagat	cgaagcgaaa	cagaagattc	gagaataatt	catgcttcta	taacttctat	660
tattaccgaa	agtggtcgg	ctgttgccctg	tggcacaacg	ttttcagtat	gacaaaagt	720
cttattttat	cgaagatccg	caaactgcag	gctctctggg	ctatttacct	gcattgagta	780
tccgagcgga	gtgcttctac	aagacgggtc	catttcttcc	tgactattcg	gcatgacgac	840
tgaaatcgtc	caaaaagttt	cacac				865

(2) INFORMATION FOR SEQ ID NO:895

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2749 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2749

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:895

gctccgagga	aagccaacag	ccctcctccc	ataccgcctg	cagctccagt	cccgggatat	60
ggactatata	ctgccccgta	tgccggtgta	taacggcacc	aaatgctgca	tcgaatcatc	120
caatcggggc	accatctcct	catccgcccc	ttctgaggag	caaaggcaaa	agcggcacct	180
tcggggccgc	aaaaagattg	cgcacatcgc	aggccaccgt	aaaaagcgaa	tcggccaaag	240
ccggagtgcc	gaagagtcac	cgatgcgata	gacctccgac	agcaaaccgc	cgcaaggggc	300
atgccctccc	ctatatctct	cccataccga	tcgtagaagc	gaagcccaat	gcctgtagca	360
tccccagtc	ggcatcggtg	gtggcgctgc	cacgatcccc	acgataaaqt	tacgacaacc	420
tcgatccaga	gcattcttga	tagctctccc	gttccgaacg	tggtagtctg	cataggattg	480
cgccggtctt	cggcacgaga	ggcagtcgcg	tgatgctcgc	catttcgatg	aaagccgtcg	540
tccgtcagcg	gatataccat	aagaagcctc	gcgcatttcc	attagtggga	gtgtgcacga	600
acggctatgc	gctgcccata	tgtggcagct	atcagtaatc	ctgcatcccc	tctcccccat	660
cagctacggg	cagtagcatt	acttctcaat	cggacaggct	gcccgtacgc	cctcagcagc	720
tgcttctcct	gcctcacaga	ggagagacaa	cccttgaagg	agtctatggc	tatcacgac	780
ttctcattcc	gcatttagtt	tacaacaaaa	tccggaagca	ctgcaaagca	tccaacaaaa	840
attccaaaa	ccaagagaaa	aaacgataga	caaactaact	cgatggctct	taggtttttg	900
ctctcattct	gtaaacctgt	atccggaaaa	gcaaattccg	gtatcagggtg	gagattgcta	960
tcggaaagga	ctctttaagt	catcaatttt	ttattgtgct	gttcgcaaaa	aaacagcgac	1020
actcagaata	ctttcgtata	tccatcgaaa	ggaagtcttc	ggctctgaca	cctccatccc	1080

gagaataaaa	gccgattggg	gcttgaagga	atgggaaaat	ttgtccaccc	gtctgtcctt	1140
ttctctgcat	tgcttttcac	ctcaatggca	acaacaaacc	tttcttgcg	aggacgaaat	1200
cgacttcac	gtctcgttcg	cgccataaaa	tacctcgaaa	cgatgaacaa	aagcctgact	1260
gacgaggtag	gctcaatgcc	tgattcgaag	attcgccccc	aggacttgcg	atcaagcatc	1320
gctgttcaaa	ggtaaaaggg	ctatacacca	tcttcaatgc	attgttatag	actgcagttt	1380
gggaataactt	gccttctctc	ttgccatata	ataaccaaac	tctgaagtcc	acaaagcaat	1440
ccgctttcat	ccaacagatt	gatatatccg	ccaaggtcac	cgtattaccg	gcattcttga	1500
gtgagcctaa	catcttggtt	aagaaaagtaa	ttctcccga	taggcagccc	ccaattcgaa	1560
agtccggcaa	gcaaagccgg	tttacctatc	ggtgtaccca	tcagaatgtc	cttattgtag	1620
ttgcttcgat	aatggcagct	tgaatatatt	ggctgaaacg	gtcgtctcat	cggtcaggga	1680
agcggcaccg	ggatatcccc	cataaaacag	atattgttga	gcgagaaacc	gaagcagtct	1740
ttcatctcct	gatagctcca	atgggtcatgc	gtatttcttc	gaatcgaccg	gccagcgact	1800
ctgacaaccc	ctttccaaca	acacacgact	actgcccac	agcaacacct	tgatattacg	1860
gtatggaacg	tatcatcgtc	ccactctttt	ttcacgactt	cactccaatt	acaatctttt	1920
gtatctcgtc	gatcacaaga	ataatgctct	cccactcctt	gcctccttca	ggctacggac	1980
agcagcccaa	caatcgga	tccaagcacg	ttcacagtcg	gaacattatc	ggctgagaag	2040
aactgatagg	gtgcatccag	tccttcagca	cctgcttgac	aaccgttgat	tttccgattt	2100
gacgagcccc	attacgactt	gaatgaatct	cctccgatct	ttaagacgat	ctgtaacaca	2160
tgatactctg	ctcttttata	catatccgca	cattttactc	agtaggtgag	tatttttact	2220
cagtgcaaat	ataataaaga	catttgattc	ataacaatct	cttacaagtc	aataaaggca	2280
atgtgattat	cccataaagg	gtggattatc	atgtattttc	caatagtaaa	tgcaacaccc	2340
tataaaca	aataccccga	gggataatcg	ctcgggggtg	gaagccaaca	gcccacctcc	2400
ctaccgcctg	cttctcctgc	ctcggcagag	gagagacaac	ccttgaagga	tctatggcta	2460
tcacgatctt	cttcattcca	cttccggctt	atttgcagcg	atagtcggca	gtccgcaagg	2520
atgcaagcat	gagaggaaaa	gccaaatcac	aaaagagcca	gtatgatccc	ataaggcatc	2580
caaagactct	tggagaaagg	caacgccaat	agttcatctt	gatcttacga	acatccatat	2640
cgtagattcc	ttgtgcgggc	ggtcttcctc	catttttgct	acgcttcggt	tgtatgctcg	2700
cgatacttcc	tttccagttg	caagtagaaa	gcattccacca	aggccatgc		2749

(2) INFORMATION FOR SEQ ID NO:896

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1167 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1167

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:896

gagacaaaat	aatcaccgca	ggcgggtatac	acggcaccat	acgcgaggtc	gcgaaaaaga	60
tttcttnntc	gaaatcgcca	atggcgtgaa	catccgcacg	ataaagggtc	tgtatatgta	120
tctgctcgcg	aagcggaaac	agacatgcca	acaagaaaga	ctaagctgca	taaaagcaat	180
ctatcggagg	aactgaagag	acgggtaggt	attacgtcca	ataacacttg	gcataaggca	240
ccccctctt	tcagttcctc	atcgttctcc	accaaatccg	ctaaagggaa	tgaactcaat	300
ctcctcaatg	ccgatcgga	aaaggggaaa	agtatagaca	aggatccgct	ccccgttcac	360
gccgtgggag	gaacgtcctt	gtctttttcg	ctttgtgggt	ctctctgccg	ttttttggtt	420
tatgcagagt	ctgcaggatg	ttacaccact	tcattttcga	ttcccatctc	ctattccgag	480
ctgccgccgg	cataggagtc	tcaggcaggc	tgccccgaccg	cttggaacatt	atgctgaaaa	540

tcagggtatc	gtgcttctga	cctataagct	gaaggggttc	tctccgataa	tatctcccca	600
tccaaagcgc	aattgcacaa	gaaaaagagc	atgcgacgaa	caaattgggat	ctggtcgaac	660
tgctccaaaa	acaactggag	acctcccagc	cgttgcagcc	atctcgcccg	aagacatcaa	720
agcgacattc	tacaccgcaa	aaagaaaacc	gtaccgtag	tcataaacgg	acaaaccgtc	780
cccaagaagg	attctacgcc	ttcgatccca	tcttctcgcc	gagcgaagtg	acctatatgg	840
aagtgcagaa	gcgttggcga	gtatcgggtc	cgtgaatacg	gagagttttc	tatcgacgga	900
ttggagagcg	atttctccgg	tgacatagcg	atgccccgat	cgatgatatc	gttatcgatc	960
cgacaaatat	cagaatgcaa	tgcgtgtaga	gcaactaacg	gaacaaacgt	tcgaactgcc	1020
gatcataaca	agaatgtgcc	tgaaggcttc	ctccttcgtc	ctctacccgg	caaagtgtga	1080
tacagctcac	actncccaca	tcgcactaca	aagaagtatc	ggaagctatt	tgcaaacagc	1140
cgttttctat	ccgtcctctc	cggatttc				1167

(2) INFORMATION FOR SEQ ID NO:897

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 522 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...522

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:897

gggcaaacac	cattagcaga	actaatgaga	ttgtccggct	tggtcgttgc	ttcactacgt	60
aggtctcctt	gtcgaagttt	acgtatctga	acttgaacca	ctcaaactac	cattgacaat	120
tatcggcaca	atctgaaatt	tctcactagc	gagatattca	gctccacctt	ggcaatggca	180
cgcacaaggg	gcacatgtcc	aaaagacgat	tggccaagaa	gtcgtgtgtc	ttgtttccgg	240
acatcggaaa	ggagaggcta	tatcggtcga	ccacggcatt	gcagtcgtcc	tcttacagtc	300
tgcaaatcgc	tttcgttagc	gacagcatca	agagccgttt	taacgcatta	tcaacattgg	360
ctacgacata	tactttgcgc	tctccggcct	cgattgtgtc	atatccaact	tcaccttcat	420
atcgtcagga	agccaggctc	cccggtgaaa	gtgttaccgg	taatataagt	atttcgccgg	480
attcgcccct	actgatcgaa	caacaaggag	ggtaaagatt	gg		522

(2) INFORMATION FOR SEQ ID NO:898

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 619 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...619

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:898

ggcgaaggcc	cggaagtctt	gacgaagctt	ggcaatgacc	cttcggccaa	cctttgaatt	60
gctgaccatt	catttcaaag	tcgaacgata	cgtccgnact	atgtgttctg	cgggaatatc	120
gctttcatag	gcttcgtgta	ctacatcatt	ttgcccgta	atgtaccgga	gagattgatg	180
gcgaagtgct	cggtagacgt	accgtagcaa	cgaaatagcc	gtacagattc	ggagtgcgta	240
catagctttc	acagagatct	cggcttgctc	cgttggtttg	tccgcttcca	cagcgtatag	300
atgcttccgt	agcggcttct	ctgccatgta	ccgccgagct	ggagtcgaac	gatttggtgt	360
aggcgattct	tccctccaga	ttcacaccat	atccttcgat	actccatcct	tgctgttgta	420
gatggtacga	atgatccatt	cttgccatcg	ctcgtgggtt	cgaccttatc	ggatgggttg	480
aactgattgc	gataaagggt	gagaaggctt	ctcccatgat	attgaattgc	caattcgtcg	540
ctcttgtagg	taataatcga	aagaagcact	gatgccttcg	tggaacgtct	tctttcagat	600
tggggggaaa	ggacacgct					619

(2) INFORMATION FOR SEQ ID NO:899

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2762 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2762

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:899

ggtagtactc	tgcctttcca	aggacctgcc	ttttgcacag	gctcgtttcg	tggtgccgaa	60
ggctctggaca	aggttatcca	ccgtttcagc	tttccgctcg	actgctttga	gaagggttat	120
ggctctgctga	tgaccgatgg	ccctttgaag	gtctcttggc	tcgtgccgctc	gttgtagtgg	180
acgaaaacgg	taagatattt	acgaagagct	tgttcccagag	atcactcaag	agccgaatta	240
tgaagtgcta	tcgctgcact	gaagtaattc	cgttcaaata	ccaaatattt	tcgggctgtg	300
ttcaatctca	ttggcacagc	cccgattcca	ttttcagtat	ctacaaacaa	acgtttcgat	360
gcccttctct	cttatcataa	aagaaaaagg	ttgaggaatg	gctgtaaatt	gtgaagagag	420
aggctcggaag	gagcatgaaa	taatgggtcg	gaaagccttt	agtatttggt	cttatccggt	480
ttttctgtcc	aagacgaaaa	gaatggagtg	cttcacctcg	cagtatcggg	atgatcggat	540
agagcggtta	tccataggac	gagccagctc	ttgatagata	aaatcgtctc	gaatcctata	600
tcggcagcat	cctgccgatt	gttgccatag	aaaatccatc	tatgcgtgcc	caatagatgg	660
ctccgaggca	catcggacac	ggctcgatga	agtataaatg	gtacatcccg	aaagatcgaa	720
agtgccgagc	cgcttcaagc	catacgaata	caattcactt	ctgcatgcgc	tgtgggggtca	780
ttgtgagggt	cacacgattg	ctcgtcgtcg	caatgatctc	tccatctttt	acttcacagc	840
acaaaaaggc	ccccctccat	tggcaacgct	ttcgtcggcc	aacggatcgc	ttcgcgcac	900
atctccttat	cctgttccgt	atgattcatt	gattgtgcac	gttcaattgt	ttgcttccga	960
caggttgctg	gcttatgctt	gggagtagat	acagtttcat	tcagagtgat	tgccgtagga	1020
gtgatcctgt	caaacggcga	cgatagagca	ttccgacagc	cAttttgaac	gttttcttct	1080

cataccggta	tgttgcataa	tttcctcggg	cgaactctta	tccccgaggg	aagccgaccg	1140
cctcttcttt	ggagcatgtg	tagcagtcgt	tcgctccgga	gtcaatacgg	tcatagccta	1200
tcggtttgag	cgagaggteg	attttccatc	gtcacggagg	cgaatcacga	aagctttcac	1260
ttgtgccccg	atagcaaagg	catcggttagc	gtatcggaat	agatcatccc	ccaatgggta	1320
tgaccacgat	catgcgataa	cccggatcga	ttcgttcgta	aaccagtgcc	gaaccttgtc	1380
cccagggggag	taggatgggg	gaatgttgcc	caaagtgttg	gcaatttcgc	cgagccaacg	1440
atcttaccgc	tcacatgata	gatataagca	agacgaaata	gcgtccgcct	tctcgaatga	1500
gctgcgtctg	ttctcgaaag	gaacgaagag	atccttggtg	atgccccatt	ccatatacgc	1560
cccactattg	tgacggagac	ggcatgcagc	agagccacct	gtcccacttc	gacaagcgcc	1620
gcatgggtgg	ggcgatgagt	ctgccttcat	tgtcatgata	gacgaaacct	ccacttccat	1680
accaggtgca	gcatctgagg	ggaggtagcg	attggcaaca	aaatatccgt	atcgccctcca	1740
tcgagatatg	ccccaatgga	tacgtacggg	cgatggtcag	acgacctatg	cgtcggagct	1800
ggtatttgct	ccgttcatcc	tccgggatta	ctcaagcgta	actgacgatt	cgtcgcgcag	1860
gagggttgca	ccaaaataga	ttcgggcata	ccatcgcgct	gcacctgaaa	gcgcacgaag	1920
taatctgctg	gtcgtttacg	tacgaacgga	agaagaaaag	taggcaaaaag	ccggcttgta	1980
tttgggctga	gccatcatgc	gtgcaatctc	tcgtagtctt	tgggtgacca	ataacgacac	2040
ccggccaaac	cattggcacg	gtgaagggtg	cttcctcagt	acggtaacttc	atgctctttt	2100
tgatgaatct	ttgtaagcag	aggagtactc	tctggatccg	gacaaaagcag	gaatacgttg	2160
atactgatga	tacggctctc	ggctttcagc	cctgcctttg	ctgccgagag	tcggggctga	2220
ctgctgccac	gagcgaaaag	tcgttggcct	gatatacagc	cccgtataga	agtaacgctg	2280
actccgcaga	cggaaacgtc	ggctctcacga	tagcgaataa	acgggaactc	catcatcatc	2340
aaaggcacgt	tgatcgcgca	tattctgcca	actccaaagg	tgtggaaaag	aaatcattcg	2400
atcgcatgtc	cagaaaattt	ggagattgtt	cctggcattg	atcagccgta	gccgagctgg	2460
attacataag	gagcattgat	ctcctgtgtg	ccggccggct	aatggggatc	gatatcatcc	2520
tcttgtcacg	cggagaatac	tgccaagatt	atgaggggcg	gaactattga	atgaggtaaa	2580
gagcttggtg	ttgtcgacag	ataataacaa	tcgacgatta	catcgggatt	gttcagcgct	2640
tccttcttcc	catggcactc	agatatttgc	ccacttcttt	gtagacagct	atatcatctc	2700
ctcgttgctg	ggcgaaaga	ctgcgaaaga	gtatgtacgc	agatggtaaa	gtccgccttg	2760
gt						2762

(2) INFORMATION FOR SEQ ID NO:900

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 573 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...573

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:900

nagttgctgt	gcgcaataat	gagggtagga	tggtgctcat	caatggcaag	agatttggtc	60
gctgcttata	tattattcca	tcatgcgtcg	caaggaatgg	gcgatttgca	tcctgatgat	120
tatatcgctc	agacgattgt	gactacgaat	tgatccgcga	tatagcgaag	aaagagcatg	180
tgagcatgtt	cgattgtaca	ccggtttcaa	atggatagca	gccgtaataa	gagagaatga	240
aggtctcgcc	gctatatagg	aggtggagag	gagagttatg	gatttttggtg	gggagacttt	300
attcgagaca	agagttcggg	atctgcttgt	gcactcttct	gtgaatggca	gcttgggctt	360
tggatcgagg	catgagtgtc	tatcgactca	tcgcagcatc	tatttggaat	acggctctta	420
ctacgaaaag	ggacttagtg	tntgcgtaaa	ggcaaatccg	gagcagaaga	gatagaagcc	480

atgatgagaa ttatcgtgag tatgcacctg tagaactcgg agctcgccctg tgcangaaaa	540
tggactatgc ttctctcgaa ggaaaagatt cac	573

(2) INFORMATION FOR SEQ ID NO:901

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2571 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...2571

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:901

tccccgagga gatccccgtg gacgaagtga ttgtaagtat cgggtgtatcc ccaatccgct	60
cgttccccga actatttccg gtcttgaagt gacaagcaag gaaccatcgt cgtcaatgag	120
agcaatcaga cagctctccc cgatgttttg ccggtgggtga catcgttcgt ggccggagcca	180
ctgtgatatt ggccgatggcg atggacggaa agcagcagct gccatgcacg aatatctgaa	240
agcggatcat agccatgact ccgagatgaa agggagaaga tagctatgcg ctatccgaag	300
tcctcattcc cttggctctt gagggtagtt ttcactaccg attgccgagg ggtagccga	360
gaaggctatc gtgggggatgc gttgcgtagt actttcggag ccaagcgata ctatacgggg	420
attatcatcg gactgtccga caacgtccca atctgcaaat ttcattcaag gaggttctct	480
tcctgcctga gataagccgt cagttactgc ctcacagctg agtctgtggc agtggctgtg	540
gcttattaca tatgtacgca gggagaagta ctccgtgctg ctctgcctca gcattactac	600
ccgagagcca taccgtcatc cattataata cggacttgaa gccgacagcc ggcttagtcg	660
tgatgaagag gagctcctcg atatttggag tcggcaaaaag gacgaaccta cacgcttgac	720
gccctgcaaa aggcttcggc aaacgagcga ttcgcgcttt tacctccttg gtcgaacgag	780
gggcatacgg ctggaggaag aagtaaaaag ccgttataag cccaagtcag aagattcggt	840
cgtctggcag agcctttccg gacggaaaag acttttgcct cgttctggat agtttgcac	900
gtgctcccaa gcaatccgcc cttttgcttc atgggcagag ctgataacag agcactccct	960
cccatattcc tctccgatgc gcaaaggcta ctggcggagt ccgatacctca tgctacagtc	1020
accctttccc tttgaaaaag aaagggattt ttctatccga atctgttaca cactcgggat	1080
gtattcggcc ggccggaggtg agtaccgctt gtgggagcag ccccaaggga agaaaaagcc	1140
attcaatcgg aagagagttc tacagactcc gcagtacggc ttctctacct caaaaacctc	1200
tttctctcct ctatacgcac gacttcgacg caaagaaaaa caactcttag aatggacgga	1260
agaagttgtc cgttaggagg ccaagtcctg tacctctctc cggaagcgaa caaacgagga	1320
ggagcgatac tctgtccaca cgtatggccg agaggctggg cagttgtttg cttcctatca	1380
tgcccttgaa agcgatgcca aaagggtgga agtgtggaac aattggccac aacggaatat	1440
ccttgcggtg tgctgggtgt tcgatcggca ttttctgcc attccgtcgc ttgcgattga	1500
ttatcgtgga cgaggaacag aatacctcta caaacagcag gatcctgcc cccgattcca	1560
tacgcgacgg tggcagctcg actcgccgg atccacgact gccctgttgt gttggctcgg	1620
ccactccttc tgccgaggtg ctccaccaag tgcgccacaa agcctggaac tgatcacctg	1680
gccggacgat cgggttcgcc cccgattcga tttggagtca tagacatggg caagatgcgc	1740
cgtcaaagac aggtcgggtgc aggttaactgc tttctttccc cctcgtctca gctattgaag	1800
agacgattcg gcaaaaaaaa tggccgtcgt cctccaaaat cgaaggggct tcgctccgta	1860
tacatttgta gtccttggtg ggaaaagctc cgttgcatcc actgcgatgt ggtctcacct	1920
atcacaagca ttcctgtatg ctcgctgcc actactcggg tacagcagac cccttccgcg	1980
catctgtccc tcctgcaagc gggcatcggc gtaggagagc cgagcagcct gcaacctgtg	2040
gggtatggag ccgaaagata gaggaagagc ttaaaagacg ttccccacc gtctctatcc	2100

tcagaatgac	agcgatatgg	ccatgagccg	aacgaagatg	gacgaagctc	tggcgctctg	2160
gaagcgaaag	aggtggatat	acttggtggc	acgcaactga	tcaagggcaa	gtctataacg	2220
aacatgtagg	tcttgtagcc	gtcaccacgc	tggaagcata	ttgggtttcc	cggatttccg	2280
cgcctacgaa	cgagcttata	agcactctat	cagctcatgc	ttaggagcgg	agcctcccgt	2340
ctatacatat	aacgaacaat	ccggccaact	cctttccgga	tttattgcga	gaaggtgatt	2400
aaaggctttt	atcggaatac	aattggagga	aaggcaaatg	cttttcttcc	accttttagc	2460
cggctgatac	gaatcgagtt	cagagcaggc	gaagagagct	cgtggagcga	atcgcttccg	2520
actatgccgc	ctctttggcc	gcccattctc	ggagcagagt	ctctcccccg	t	2571

(2) INFORMATION FOR SEQ ID NO:902

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 584 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...584

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:902

gggaaggcat	tttctctgtg	ttcgatgcgt	ttgcaggaac	catcagcacc	aaaactacag	60
atataacatc	gaagcgtacc	ggcagatcga	tggcgtaact	cgcacatagt	gatgcgcaga	120
ttcggaaatc	agtcgccgct	tgcgtgctcc	acagcctctt	cggggggccag	tagaaagcct	180
tcgggtacgag	tcttgattcc	acaacgacca	gttctcttga	cgtggatgcc	acgatatcca	240
gctcgagccg	ccccgactgc	cagttcaggg	cttctatctg	atagccttgc	tgccgaggtg	300
tttcagcgcg	atctcttcgc	cttggcgctc	gcggtcgtta	tgacggccat	tgctactgtc	360
gagacctttt	ttttcggttc	ggctgaggat	gagctctcta	tgtgccgttg	ttttttctct	420
tccaggatct	taccacagc	atgaatatgc	cggtttcctc	cacctctccg	aaagactcat	480
tcaactgcagt	tcgaaaacac	gcattctcgg	agacaaagct	atatatgcac	ttacgagana	540
gggatattga	taccagctt	gcgcacttct	atattgagag	tctt		584

(2) INFORMATION FOR SEQ ID NO:903

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1075 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1075

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:903

cgacgtagct	tgtgtgaatg	gcgatttcct	gtacaacgta	ccatgtttcc	agaagccctg	60
atgcgtgcac	aaaaagatgg	taaaccgaca	ggtactgtgc	tatcatagcg	tctacgatca	120
accagtcttg	ggctttctcct	atgcgcggca	ggatgagatg	aacgaaattc	tgtgcgaaaa	180
acacccgaac	aacatcagcg	tactttcgga	ggtgtcacca	tgaacgggat	gtttgctatg	240
gtggaaagta	taaaaaggat	ggtgagaaga	tgctcgacac	atggactgta	ttcgcgaccc	300
ctcgctgctc	gttcgtacac	ttgtcccgc	caaaatgcag	gttcggctcc	ggcaaataatc	360
tctgcctctg	cacagacatt	cgaagtagct	tggactataa	cgggtgctatt	gctacgctct	420
ctgacgatgg	tgatatggtc	gcactgctat	cgtgaaagac	ggtaaaggcta	tcatcaaatt	480
aaatgagagt	tcgctgatga	aacgaacttg	acgctcaccg	tagtaggata	caataaggta	540
ctgtgataaa	ggatgtgaaa	gtggaaggta	catctattgc	cgacgtagca	atgataagcc	600
ttatactgta	gctgtatcag	gtaagacgat	aactgtaaaa	gtcctgctgc	cgggctgacg	660
atcttcgata	tgaacggccg	tcgtgtgcta	ctgctaaaaa	ccgcatggta	ttcgaagcac	720
aaaacggcgt	gtatgcgttc	gcacgcctac	tgaaggcaag	acgtatacag	aaaaggttat	780
agtgagtaat	tcacactgca	attctctaata	aagggtgtg	ccgaggaatc	catcggcaca	840
gccctttttg	aattattggc	actacgcaa	gagactggtg	agaatcaggc	gagaaaagag	900
gatgctaaag	gtcgtaaata	acggctcaaa	ccaatggccc	gttcattctca	taccatgggtg	960
cgcaagggct	acagaccata	acttgagatt	atgtgccata	gtgcttcggt	ttagggtggag	1020
atatggtcct	tattgaggaa	aaatattctg	gttatgagag	agaaatcttt	ttttg	1075

(2) INFORMATION FOR SEQ ID NO:904

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 723 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...723

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:904

cccaatccgt	cgctccgtta	agaatagagt	tgatctgccc	catcggtaga	acctgtactt	60
ccgtgtcgaa	atcgaatttc	ttgataaaga	tgttattgct	ctgacgaacg	ctaccatccg	120
gccatcgggg	ctgaatgtag	ggatcatact	ttgccgacat	gctcgctcag	tggttttacc	180
aaattgcggc	gaacatatag	tcgtagacgg	cagcacgata	cgaatgccga	tagatgctct	240
ccataccgta	aagagcaaaa	tatgatgtcc	ggtactgctt	acctcgtagt	tctgatttgt	300
ttaaacgggc	attcgcgtgc	tcgttcgaca	ctgaagagcg	tattaccgcc	ttgccggagg	360
cataattgta	gcgaatgata	gccgttcgct	caggttcatc	tccgtatagt	gttctccatc	420
cggcatggag	cgtattccac	tcctgcaactg	cgagcataaa	acattccgct	cgtgatttct	480
ttcaaattcta	gggtttgttc	cccgtctgag	ccatggcaca	catggttacg	atgccaaagtg	540
cagaattatt	accggtcttt	tcataagaaa	gtgtattgta	tcttctttaa	gtgggtttatt	600
gcttagcggt	tcaatgcacg	atccatctct	cggcgatatc	tcgctctttg	atggatgcac	660
gtttgtcata	attgnntttt	ccctcggcca	atccgatttg	cagcttggcc	aatccctttc	720
atg						723

(2) INFORMATION FOR SEQ ID NO:905

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1306 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1306

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:905

gattttcaac	ggtttgctct	tcggcgacag	cctgatggat	tcctcttcgc	ggagaatgcc	60
atggaaggct	atgcacagat	gctggggagaa	gactatcgtc	taacaatgcc	gaagccaatc	120
tgcaagggtc	tccttctgac	cttttggtta	tatctacaag	caggaaaata	ccatcgctta	180
ttgcgatacg	ggattgtctc	cacgcgcac	aatacatata	cttacgaagg	cgggtgcacat	240
acggaaatac	agtccgggtt	gccaacatcc	ttcgaccac	cggcaagggtg	ctcgagagcg	300
agatatattc	aagatcgact	atgcggaaaag	gctgtccgca	ctctcatagg	acaattggtg	360
cacgatttcg	gcaagaccac	acctgccgaa	ttgatgcaat	aggtttcttc	aacgcagaag	420
aaatacagcc	caatggcaat	ttatgatcga	tgacaaaagg	ctcacatact	gtttcaatga	480
gtatcagata	ctgcttatgc	cagagggtgct	gtctatgtcc	gtctcggata	tgacgtattg	540
ctcctttgct	aagggatgat	tccccactaa	agcgttactt	gccgtagccc	ctccttttgc	600
ttcgaccgat	atgaccaata	tcgaggagat	acccgaaagc	cgctgtccca	accggcaggt	660
accgagatca	tcgagaaata	cttccccact	tgccgaacg	gcaacgcgaa	caattcgagc	720
aaatgggagg	gctgtcacgc	attggaatgc	cctcatcaat	gtcatttccc	gaaaggatat	780
agacatttgt	atctgcacca	tgtgttgcat	tccttgggga	tagctcgcat	gctaacttca	840
aacccggcac	aagtgtattg	gatttgggta	cgggtggagg	ttccccggta	ttccactggc	900
gattttgttc	cctcaagtct	ctttcctgct	gtggacagca	tcggcaaaaa	ggtgaaagtg	960
gcttcggccg	tagctgaagc	ttggggcttg	acaatgtgcg	cactatgcac	tgtcgggcag	1020
aaagcatagt	gagaaattcg	acttcatagt	cagccgtgca	gtaatgaagc	tgagcgaatg	1080
gccaagatct	gcaggaaact	catccggcgt	gaagatcagc	naaatgcctc	ccgaacgggc	1140
ttatctgtct	caagggtggc	gagcttcaag	cacgagtact	gccattccgg	aacaaggcna	1200
tgacagagga	gctatggccg	accttaagaa	gagtatttca	aacataaaaag	tgtctactac	1260
ctctatgaca	cgacgaagta	aagatgtcac	ctcaattcgt	gcagaa		1306

(2) INFORMATION FOR SEQ ID NO:906

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 603 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...603

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:906

ggaacttcgt	ctcctgatcg	atagcggacg	ttatgacagg	gctttgccct	agcccaacag	60
ttggtggcca	aaaatccaaa	gcatgccgat	aataactaat	gctagggtt	nttctgtaca	120
nggctgaacg	ctacgaagaa	gctattgtcc	ccttcgggtg	gccgtaagcc	ggcggagtga	180
tgccctatgag	atggttgcgga	tgcttatgcc	aaagagtatt	tcttctccga	agctcttgct	240
gcactgaaaa	acagaagggt	actcttgtga	agaaaaaaca	ggaaacagtc	tccaagatgc	300
cggaatagac	cgtatgcgac	gagctgtgcg	cttactggac	agaccgaatg	ggtaggagtg	360
atagacagcg	tacggacgaa	taaagccgat	ctctgtcggc	ctacaatctc	atagccgata	420
acggtcggct	cgaatgggtg	aaggaaacca	aggggaggcg	acttcttttg	tcaatgggcg	480
cggcgaccat	ccatcatgac	ggagaaagggt	gaggatggag	tttncagcct	gcatgaagnn	540
nncggatcgg	tggcaaatgg	ggcaatgcga	tccccctcga	aaaactcatt	cccgattcaa	600
tga						603

(2) INFORMATION FOR SEQ ID NO:907

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 595 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...595

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:907

acagagggag	ttcggaaacc	tctccttcgt	tctccatttg	catcttggca	tgagagcata	60
taagagagtt	tgagctatgg	ccgtcggatg	ttttttgctt	ttcctgctat	cgggtgttgg	120
aacataagat	cccatgagcc	aagctcttgg	tggtatctcc	actttttag	tccactatgc	180
gccgacattc	ctcattaact	catcaatgcg	gtctatgatt	ccgtgtaacc	gaacccggct	240
accatgctaa	gggagaagct	gcctttgact	ctgcgctccg	agtctatgta	gcgaagggag	300
ccaatgattt	gtnatgctcc	aagatccgcc	gtacatactt	ctcatcatga	tgcaataaag	360
atgattcaat	cccgacaaag	ctccctgtgt	atggccgatc	ggagatattc	ttccgtgtat	420
gcttgcccta	ctatcctcgc	gtagttgcat	tcttcggatc	caaccaccga	gataaaaatat	480
ccgaagaaac	atcccaccac	cgcaacaagg	ctttagatc	aacttcattg	aacgatgcac	540
acggaccgaa	atcattggcg	gccatcagtt	catcggaagc	attctctccg	tatcc	595

(2) INFORMATION FOR SEQ ID NO:908

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 1072 base pairs

- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1072

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:908

ttgcaaaagg	agctattcaa	aaaaacacga	accggaaatg	ctccgattgg	gcgcgtattc	60
cctgaaaaag	tggcgcgaga	atTTTTtctg	tgtggcgtag	aattttttgc	ttcccacgcc	120
aaaataaaaa	agtttacgaa	ccgcgtttga	ggagtagcaa	acgggaaaat	tttggagcct	180
aaaccaattc	ggttatatag	tacatgttcc	tgatcttctt	ttctgaaaag	gcttgatagg	240
attgaggaac	tgtttctttt	ttcttttgct	ttgattcggc	tgtagtgaa	caataaaaga	300
gaaaaagaag	aagcctcttg	ccgagacaac	cgagcggttc	ttgcagaggc	ttccttatgt	360
attggtgcaa	agtgcaccca	tggagttctt	aaaccgagat	tctacaatat	cccagtcaac	420
gatactccaa	agatctttga	gtggtcggca	cgacgattct	ggtaagtcag	ataatatgcg	480
tgctcccata	gtcgaatccg	agcaaaaggat	tcaacccttt	gcgcacggga	ttgccggcat	540
gggttccttc	tcgatggaca	gtttgccatt	ggcatcggat	gcaagccaac	ccagcccga	600
ccaaagaggg	tggtagcggc	tgtgttgaa	tcctcttgaa	cttttcgaat	gagccgaatt	660
gtttgtcgat	agcttcccc	agtttgcttt	cggtgctcct	cccttgcccc	gacggaactg	720
agtgaatatg	agatttggtt	gagggtttgg	ccggcattgt	tgaagatacc	gccttcgctc	780
tttttacgat	ggtattcaag	tcagcgtttt	caaattccgt	gccgatgatg	agctattgag	840
gttggtccaca	taggtcttca	ggtgcttacc	gtgggtggaat	tcactgtttc	tttgctgata	900
acaggagcca	gtgcatcgac	cgcataaggc	aggaaatgag	ttcgtgagtc	ataacgtctg	960
attttattgt	aattaagtct	ttaataattt	gtatcggagc	agtgtaaaac	cgacaccgac	1020
aatttttaac	attataagaa	catgatgaac	ggaaaaaggt	cgaatcttgg	tc	1072

(2) INFORMATION FOR SEQ ID NO:909

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1010 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1010

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:909

ggctcaagag	attctggcca	agatggataa	cagcctgccg	cgtctggcca	atgcgacatg	60
acaagagctg	accggtagct	tccgaggtat	gggaccggaa	aagcagtcac	cgtgatggca	120
gcaatggaac	tgtcccgccg	tatccctcgc	aagagatgcc	ccgcagagaa	tccattaccg	180
atagtcgaat	ggcctacgaa	ctataagccc	atttctcaca	gacctgccgc	aggaagaaat	240
gtggggttac	tcctcaacca	aagcggaaaag	ataatcagca	tggagaacct	tagcgaggag	300
gtgtatcgga	gacttcggcc	gatgtccgtc	tgatcatgca	caagccgtct	ctcatcttgc	360
ctcggcaatc	attctggcac	acaatcatcc	ttaggaacgg	tacgcccagg	tgaacaggat	420
attcagctta	ctcaaagggg	gaaaaggctg	ccacattgct	cggatttcga	ctgaacgacc	480
atctgatcat	ggtgacgatg	gggcatattt	cagtttcgct	gacgaaggcc	ttctctgatt	540
ttctctgaat	ccatacaagt	aaatagagag	tcggactctt	tcttcttggt	gaaaccgatg	600
agaaatcaac	caccggaaca	aaaaagccgg	gtcatccttt	atatcgccgc	atagcaagag	660
taccgggtgt	cgcataggcg	acatttaggc	agatagcagc	ttctactttt	gtgtcatcaa	720
agaacaatga	tcgataacat	aagaaggaga	ctcgacaatg	gaaaagaaaa	tgttttgcta	780
tcaagccagg	aaacagccgg	caataaggga	tgtatcctca	aagggtatgc	cgtaggactt	840
tagtacagct	aatctgatgg	attgctcgtc	tttaacctca	aagtattgcc	atcataatga	900
cttctatgag	gcgtgccgga	gtgaaagccg	aaccgaaagg	ctgcaaggcg	atcatggaat	960
ctctattgcc	acaataccaa	gccaaactcga	ctactctcca	tagccaacgt		1010

(2) INFORMATION FOR SEQ ID NO:910

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1274 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1274

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:910

gaatcgacta	ctctctattg	attaaggaag	ggctttttgt	actttttggcg	acagaaaacga	60
taaataactt	cgaaacgatg	accaactcca	actccttaac	gagagactac	agacagcgga	120
ctcattcttc	ctgatggccg	gcccctggcc	atagagagcg	aagatatggc	actgcgcatt	180
gcagagcgaa	tagtaggggtg	acttcccgcg	tgggcattcc	gtatatattc	aagggatcgt	240
accgcaggcc	aaccgctcgc	gtatagattc	cttcaccggc	ataggcgacg	aaaagcactt	300
cgcattcttg	gcaaggtagg	ccgggagttc	ggtgtcccga	cgggacggac	atacatgaga	360
cacacgaagc	ggctatggct	gccgagtacg	tgatgtactc	cagataccgg	ctttcctctg	420
ccggcagacg	gatctgatcg	tgcggcaagc	ctacaccggg	cgaatcgtca	atgtgaagaa	480
agggcagttc	tctcggcgaa	gccatggctt	tcgtggcacg	aaagtgcgtg	gacagcggca	540
cagccaagtg	attctgaccg	agcgtggcaa	taccttcggc	tacacggatt	ggtgggtggac	600
taccggaata	ttccggcaat	gcgttcgctg	ggctttccgt	agtaatggac	gtgactcact	660
ccctccagca	acccaatcag	ggtagtgcgt	gacggggggg	aaaccggaac	tgatagagac	720
catcgcgaa	gctgcatagc	cgtagggtcg	gacgggcttt	tcatcgaaac	gcatcccgat	780
cctgttcggc	caaaaagcgt	ggagccaagc	tgctccgact	ggattttgctc	gaaggctgct	840
cacgaagctg	atgcgcatac	gggcagcgat	cagggtattga	gctgcaagta	accgtcttat	900
cggccgatta	cacatattgt	aggaaggctc	ttcaggaacc	gaaagaaata	tgatcgagga	960
ggaaacgagg	ctgattcgct	ctcttagaaa	tcccgcacatt	atgtcccca	ccggcgaaact	1020
cctccttcct	aacaagagtc	gcagcatccc	tctcttggct	gtacataaat	aacttgtact	1080
ttgtgcaact	ataaaaaaga	atcaaatact	attccccctt	tatggaataa	aaaagactac	1140
acgtatcgaa	agccgatctt	atcgggagaac	gcgagaaccc	ggccatattc	tatatggcgt	1200

acagacgctg cgtggtatag aaaactcccc atcagcaatt ttcatttgaa cgattacccc 1260
ctgtttatca atgg 1274

(2) INFORMATION FOR SEQ ID NO:911

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 557 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...557

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:911

tgcgctatgt	aatggagcag	attctctttg	agttgtgagc	gcagttccct	atttcttcgg	60
acgggatttg	ctctattatt	tcccaagcgg	attcttcacc	tgacggctga	gaaaatccgt	120
gccaaagatgc	cgttcataga	acctctgctc	tccggagaag	cccaggctcg	aagggtgtacg	180
ccattgggtga	catgtctaca	tgcagctctt	cggcaaagaa	gccggggccat	acgggagcga	240
acatcttcgc	gagactactc	catgcagata	gctgactcca	ttggcctcct	gacagtgttg	300
agtgc aaaga	cactcatgga	gaacttttcg	ttcgagcccc	gtgcgttcgt	cccatgtcga	360
tgaactcctg	ccagctgatg	ccaagtctgc	gagaaaatgt	cccatgtaac	gccccaaaag	420
ctcttcatcg	aagtagtcat	gcctgccggg	acaggggtgt	gaaccgtgta	gagcgaggag	480
gaacgaacag	ttcaanggca	atatcgaaac	tcaatccctt	tggttcacat	agtcnggccg	540
acgttgagca	ttgatca					557

(2) INFORMATION FOR SEQ ID NO:912

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 881 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...881

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:912

caaagatacg	gtccatcgct	tggtgcatga	agaagaagat	ggccttcccc	ccttattata	60
gatgtatatg	gacatacggc	ctnatgcagg	cacacagcta	ggtatgccnc	cacgcacgan	120
cggatatacg	gaaggctctt	atagcgagac	tgcaggcttg	gtagatgccg	tttattacaa	180
gtcggacagt	actctacatt	caaagccgga	ctggaatcgg	ccgatggctt	cctgatcggt	240
tcagccaagc	cgaagcagag	tacgaaaacg	gacttctctt	cctgccccgac	tggaacaaagg	300
acagaagacg	gggttcttta	tcgaccagcg	agagaacagg	gcctgctgga	ggagtatgcc	360
tccggacgta	aggtgctcaa	tatgttctgc	taagcgggtg	tttctccctg	tatgcaatga	420
gaggaggagc	atacaaggta	cctcgggtgga	tagctcggcc	agagccgtgc	atctgttgga	480
gaaaaatatg	cactgaatth	tgccgggagac	gatcgtcacg	aatcttatgc	cgccgatgct	540
tccatttcct	tgacgagatg	gctgtcggag	cttatgatct	gatcgtacgg	atccaccggc	600
ttttgccaaa	catcgcaaag	tgctgcgcaa	tgcgtgtag	gttaccgcaa	actgaatgcg	660
gtagcttttc	gcaagattgc	tccggggggcg	tgctcttcac	cttcagctgt	tcgcaagcgg	720
tcagtcggga	ggaatccgtt	tggcggtctt	taccgcagca	gcacccggccg	gcagaaaaggt	780
gcgatactgc	atcaccttac	ccaacctggc	cgatcacccc	atcaacatct	atctccggaa	840
ggcgaatacc	tggaagggct	tggtctctac	gtagaatact	a		881

(2) INFORMATION FOR SEQ ID NO:913

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 855 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...855

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:913

gggcaaaaac	attcaataca	atgacgatag	aacaattcaa	tttcgccgga	agaaagcctt	60
cgtgcgcgtc	gatttcaacg	ttcccctcga	tgacaactta	agatcacdga	cgacaccgcg	120
atccgcgcag	ccctcccccac	tctccgcaga	tcatagccga	cggcgggtatg	accatcatcg	180
gctctcatct	gggacgcca	aaggcgtagc	accggagttc	tccctccggc	atatacctgcc	240
gcacgatccg	aactgctcgg	cgtggatgtc	ctctttgccg	atgactgcat	gggaccgatg	300
ccatggacaa	agcggccaag	ctcaaagccg	gccaaagtgt	gctctcgaaa	atctccgctt	360
ctatgccgag	gaggaaggta	agccgcgcgg	acctccgacg	atgcttcgga	cgaagaaaaa	420
gccgcagcga	agaaagccgt	caggctgtc	agaaagagtt	tacgcaaaaag	ctggcttcca	480
tggccgactg	tacgtgaacg	atgctttcgg	cacagcgcac	cgggcacatg	cttccacaga	540
ctgatacctg	actacttcga	ccgagaccac	aaaatgttcg	gctatctgtg	gagaaagaag	600
taaaagccgt	agaaagagtg	ctgcacgaca	tcaagcgccg	ttcaccgccca	tcatgggagg	660
ctccaaggta	tcgaccaaga	tagaaacatc	gagaacctac	tcaacaaaagt	ggataaacctg	720
atcctgaccg	gcggatgacc	tatactttca	ccaaagcggc	aggcggctcg	ataggcctct	780
ccatgtggaa	gacgacaagc	tggaatttggc	tcgcgacatc	gtgaagaaaag	cagcgaaggg	840
gcgtcaatct	gatac					855

(2) INFORMATION FOR SEQ ID NO:914

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 280 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...280

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:914

ttgccgctat	gaaaggactg	gcctctgtcc	ttgaggctga	agtactccgg	aatagcaccg	60
ataatatcga	ttgccacgaa	tagaatcacg	aaggagccat	gatctctttc	aggtcgataa	120
ggctcaaata	ttgtaatact	ttgtctaaaa	atccatcggt	tctgatttgt	ttgatagtta	180
aggttggaag	gtccgggtgg	gtcacgatc	ttgacagtcg	caaaattaac	gtttttcgcc	240
ctatcaaaga	taaccatcgg	cgaaaaaagg	tactgccggc			280

(2) INFORMATION FOR SEQ ID NO:915

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 623 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...623

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:915

gtactcagcc	ccgtcgtaca	ggaaccgaga	aaatgggtgca	acgtacagcg	gacgacctgc	60
aggcggttgca	actcaaaaaga	gaccggctgg	aagaggaacc	tgtaaacggg	acaagtcgag	120
agcctatattg	gtggatgacg	aagcgtgaat	aacaagatcg	aagagatggg	ttttatcggc	180
ccggaagatg	cgattacctg	gccggcatgt	atgccgaacg	tacggcgttc	aacgccaage	240
gctgggttata	aaaaagggtt	atcaactggt	ggaactgctc	tttcatgccg	tcagctggtc	300
atcgacacgc	tccgcacatt	ctttctgac	gtgctgtcca	tccggggccg	atcgtgttcg	360
gtatcgccgt	atgggacgca	ctcagcggat	cgtgacagcc	tggttcagcc	gctacatctc	420
cgtctatctc	tggctgccgg	tagcagtatt	ctgacagcac	tgctcacgaa	gatacagatc	480
ctgatgctca	caaggagatt	gcccagttgc	aagacgtgaa	ctatatgccc	gattcgggaa	540
ctggtactac	atcgtcttct	tcctgatcgg	cattctcggt	ttcttcaggt	accgactggt	600
tcgggatgga	tcatcgaagc	ggg				623

(2) INFORMATION FOR SEQ ID NO:916

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 718 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...718

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:916

gtggaaggat	atcagaagat	tgtcaaatta	tttctttgat	gatcggaatg	cgttctgtcc	60
gatatgtcaa	tcaagcaata	tgaatttgca	ggaccacgag	cttacttcaa	ttagcggatc	120
acagagcgag	tgcaaaggaa	gagtcaaatg	catcccggat	ccgattgctt	tttcttatac	180
ctttcctgaa	aagtggaaaa	aagacctgtt	caaaagctgg	tagaaaagca	ttggagagac	240
gaactctttt	agtacgagca	cccactgggtg	ctggaaaaac	ggatgcagca	ctctgtgggc	300
ttctcatcaa	atcaaacaca	gaaaagcaga	ccgcttgatt	attctatgcc	cactcgtttt	360
acaacaaatg	cactagctct	aagcgtatct	tcaccctttc	ttctacaggc	ctgtatcatt	420
ccagtgcatt	gacacagaat	tcagtagcaa	aatagacaac	ggggaaatag	ctttagagca	480
ggcaagatac	atcataacca	agctcgctta	ctacagaccc	ctataacggt	atgcaccatg	540
atcatctcct	ctcttcattg	actctttgtg	acgaggaaca	tcagaccata	cttttgcact	600
ggcaaattgca	tgtctcggtg	ttgatgaggc	agatttcatg	atcaatttac	acaagctaata	660
atattagtat	tactagaggg	tctaaatatg	gaaagtgcgc	atattgctga	tgagtgcc	718

(2) INFORMATION FOR SEQ ID NO:917

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 541 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...541

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:917

aacggatcac	ccggcgagg	atcggggctg	tattgagtgc	cggagcagcc	tctatctgct	60
gaacgnatgg	atactgagcc	tgccgggtcg	catagacctc	gggctgtctg	ctacctcctt	120
acactgagcg	caggatttat	ctgtctgtga	tggccggctc	ctggatcagc	cgctgttga	180

agcacaacct	gatggagatg	tattcaatgt	ggagaatgaa	agtttcatgc	aggaaacccg	240
tctgagacga	acgagtattc	ggtgaatctc	ccgactcgtt	tttattaccg	gaaaagtggc	300
gcgacgggtt	gatcaatgtc	gtgaatcctt	tccgcgcgag	catgtgctcg	gtacgccggg	360
gtcgggaaaa	tcctacgcga	tcgtaaataa	ctcattaagc	aacanatcga	gaagggat	420
gccatgtata	tttatgacta	taattccccg	acctttcccc	agatcgctta	caaccatctt	480
gcttcagaca	cggaagggcg	tattgaagtg	cagcccgaa	gttttaccgt	aatcaacttc	540
g						541

(2) INFORMATION FOR SEQ ID NO:918

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1429 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1429

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:918

aaatagtcac	atatttctcg	gcctgtcatt	ttgcantggt	gcaaagaaat	tctgggtacgg	60
aatagatggc	ggaacatgtg	gtacatatag	atcggaatcg	ccgggcaa	ccgtattgat	120
ggagagagga	gcttgcaaat	gatatatcgc	gccggacttc	gctcagcatc	acatgatgaa	180
tcagatccat	gaaagggacg	ggccgaacag	agcgtctgca	gaacttattt	cggtggaaga	240
aacaccatag	gctcgttcac	aaaccggcga	acggcgagctt	catcggagga	gaaagcgcca	300
taaaggctga	atcggggagta	agccgcgata	tgtccgtcaa	gccccctcca	ctcttttatg	360
cagtaccttg	tctcctttgc	gagcgagact	gatcgcacat	cggacacttt	gtccaaatga	420
ttggccggat	tcagtacgag	acggagtcgg	cttctgctcc	tttcaccctc	cggtgttact	480
cctgatgac	tgtcccagca	atagtacatc	tatgcctgcc	acttcacgag	cgagagtcaa	540
ccggcatctt	cgagatagtt	cgaattgtca	ttctccctgc	cggaatgcgt	acgcatacaa	600
caaaatcagg	tttttccttt	tggatcacaa	acgggtaccag	tacttgccg	attcgattat	660
atcgtcgaat	cgcattcccc	tccacaactt	tgcggcagcc	actcaggaat	agctggagtt	720
ataaagccca	acagaccacc	ctcagcccgt	tccgatcgaa	gaccttataa	ggagcccaat	780
atggttgccg	gtctcggtgt	cgatagcggt	cggccgcaag	aaagggaagt	cgcgccggct	840
accattttgt	catagacggc	atggccgggtc	tcgatgtcgt	gatgcccggt	atggcgccgt	900
catagcgcaa	gtagtccatc	gcacggggaga	aagatgagta	cccgtcgtgt	ccatgtagtt	960
ataatagtag	gccgtaggat	gccctgcaat	acgtcgccac	catcgaagag	cagcaactcc	1020
gatctgtcca	ccgggcagct	ttcagaaagg	aagccaagcg	cgacattcca	cccgaagtgg	1080
tcttaaagct	ttgaaatcag	tggggaatac	attcccgtga	agatccgagt	gtgggataata	1140
cgaagcgaat	gctcctgcct	gcttgacatc	ccaccgggag	aaacgtcgcc	agcggaagca	1200
ggacggacag	caaaccgaaa	agtctttctt	cataccgtgc	aatctgtagt	attcctaaaa	1260
gtctatttca	cctgctacct	gcagcaactt	cagccgcccgg	cataatgacc	ctgagcgaac	1320
catcgcatcc	tctgccgaaa	gaatcatgcc	ctcggactcg	atacctttca	gctgcgcggc	1380
ggcaaatttg	cgataaagca	tacctgcttg	cctaccagct	ctccggagc		1429

(2) INFORMATION FOR SEQ ID NO:919

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 443 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...443

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:919

gccaatcaga	acaatcctta	cttccgaccg	aatcgagagt	ttgcctttct	cgccatacaa	60
cggacgaaat	acttcttgtc	gcagccaatt	ttgccccaac	gaagcagaaa	tcagggtgat	120
tattccccga	cacgcctttc	agacgatcag	ataaaggaca	atgcagcttt	cctgctgacc	180
gatatgctct	ccggagaaac	agcatcggct	gtctcaccca	atacgcccc	taccgctac	240
atcttcggcc	tacggctatg	ccctgcatcg	cttccgtccg	ctttagacgg	atcagccaat	300
tctcctatag	ctctttcaac	gggtgcaaaa	aacaaacgag	ggttatcgaa	aagaatgaaa	360
catcctcggt	cttataaaga	gaatcgtatg	cttttgaagc	atatgatcag	taggaatttt	420
agttnttcca	aaatctgaaa	att				443

(2) INFORMATION FOR SEQ ID NO:920

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 952 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...952

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:920

gcttggg	gcgc	agtggacttt	acgggtggcgc	tgcaactacgt	attcgatacc	cctacgaccg	60
tatcgctctgg	gacgtgggac	atcaggctta	cagccataga	tcctgaccgg	ccggcgcgaa		120
gacttccgcc	atttgcgcca	atggggggca	tcagcgggtt	cccctcgct	aaagaaagcg		180
aatacgacac	attcccgcgcg	gacatgcttc	caactctatc	tccgcagcac	ttggaatggc		240
tgtggttcgg	ctgccaagga	tgagaaacgg	aagggtcatag	ccgtcattgg	agacgttcca		300
tgacgggagg	tatggctttt	gaagggctga	acaatgcac	gtcttcccga	acaatctgct		360
gatcatcctc	aatgacaaca	acatgtccat	cgcagggaatg	tcggaggact	gaaccgctat		420
atgggtggaca	tcctcactag	cagacgtata	atacgattcg	ttacgacctt	tataagggct		480
tgcgaaaaat	aatctgatca	gcgagacgaa	cagaaaaaat	ctcctgcgct	tcaacaacac		540
ttcaaggcac	tactggcacg	cgagagcaat	ttattcgaag	gattcagctc	cgttatttcg		600

gccccgtcga	tggcaataat	gtgctccgct	tggtggagta	ctcaatcaga	tcaaggatat	660
ggccgggct	aagatcctgc	acctgcaacg	atcaaaggta	agggtactc	tccggccgag	720
aagcaggcta	cgatcggcat	gcgccgggcg	aattcgacat	caaatcggga	gaacgtaaga	780
aaggggagaac	aagcccgagc	cacccaagtt	tcaggatgtg	ttcgggcata	caccgtggag	840
ctggcggaca	gagacgagcg	tgtcgtcggg	gtcaccccg	cttgccgaca	ggttgctcca	900
tgaccttcct	gatgaagaaa	taccgaata	ggcctatgac	gtgggtattg	cc	952

(2) INFORMATION FOR SEQ ID NO:921

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 445 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...445

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:921

gacgggtata	aacttcgatg	ctcttcccgga	atgtccgttc	gtccatggcc	ctgcttcaat	60
ggcagccaga	gcgacttccc	atgctcccg	catttcgggt	cggcgatctt	tcgtccggcg	120
accagtttat	agacggaaag	accttttcgg	tcgggataag	catcttcttc	tcccggcgga	180
tatatctctg	caggataatg	nctcgatgat	ggccgcacgt	gtggcaggcg	taccgatgcc	240
gcaacggcga	gggcttttgc	ggcttcttcg	tccgcaactt	cccgtccggc	ggtgtccatg	300
gcncgacagc	aacatggctt	cccgtataaa	ggggctttgg	gcttgtttga	tngntccngn	360
catttcgaaa	tccgaaaaca	tcgagccggg	ncgcctttcc	ttgccattcc	gggaaagctg	420
tccacaacgg	gtttcttcct	tnttc				445

(2) INFORMATION FOR SEQ ID NO:922

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1048 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1048

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:922

ccccctcgcgt	atataccgag	atactggaca	aatgagacac	tgtgcaacac	aatagacagt	60
acaaaaacaaa	aatatggcga	aatgacagcg	agcaaaatcc	aataaaaaaaa	gtgtgtgagc	120
attgcaaaca	ggagtttata	gcttttgagac	gactaccaag	tattgctcac	atagatgtaa	180
tagcagagcc	tacaaactca	aaaaagagaa	gagagggtac	gcagaacaga	actttctgaa	240
caagaaaaaaa	ggtcagtgat	attatagaca	aaccttatct	ctccatctca	gaagtgggcg	300
attacttgggt	attagtaggc	atacaatata	tagatatatc	taccagggaa	cttaaaggct	360
tataatttga	gttctcaacg	ctcaatcgtc	aacgtgaaga	cattgaacgg	atgttggcag	420
agcgacctta	tgagaaacga	cgcccagaga	tgcaatcgta	attacggaac	tatatacgac	480
agacgagggtg	gcgatatcca	caacatatct	cgatcttctc	tttttgcaat	agccaagcgg	540
agaatatccc	tcgaacttat	aacagaggca	agacctattg	gagcaaacgc	atatagatgc	600
ctatttttgct	aaacaggctc	ctgcttctca	tatcgaaaat	gggtgtacagc	cgtggagata	660
caagaaagat	tcgatatgac	gctcacgccg	tttacaactt	catctctgat	cacaacatcc	720
ccagaaagaa	agtcagggtg	aaagctacta	ttccaccaa	catgtcgaag	cagctaaagg	780
agtgttgata	aggcagctcc	aagctactat	actgttcggg	aggctatgga	aaatttggtc	840
ttactcgtga	ccagctctat	caatatacca	aacgttataa	tgtcctaaac	taaagcaagg	900
tcggaatgtc	ctcatttctc	agcaagaatt	gatgaagtcc	tcaaacctcc	cagcatcact	960
cgataagtta	tttgttggtg	tatgggacac	cctcttatca	ccttattctt	ttgcaactga	1020
atcaataaaa	taaccctcta	atcaacgg				1048

(2) INFORMATION FOR SEQ ID NO:923

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 396 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...396

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:923

cttaaagaga	ccacggtttc	ttttcggaca	taaaaaagaa	ggcgatccaa	acatctgttc	60
tagctcgccc	tctctattaa	agttatttat	atccgatgag	cgacttattc	ttctgctgct	120
ttaggagttt	cttctgcagg	agctgctcta	ctacaacgtc	tgcgctttta	cgcttacgag	180
aacggcggtg	tttgggtgct	tcttcgctgc	ttcgccaagc	atattctcat	tgtagtcaac	240
aagctaataa	agcacatagc	agcattatct	cccagacgat	aaccggctct	caagtacggg	300
tatatccacc	gggacgatct	gcaatcttag	cagcaacatc	tccaaaagtc	cttcaggcat	360
attatctgta	gtaagagagg	cgatcgcgag	aggcgt			396

(2) INFORMATION FOR SEQ ID NO:924

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 897 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...897
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:924

tccngctgtc	tcgctctcct	tcggggcctg	ttcttggtt	ggttacttgc	ataggcgtag	60
tgctgattcg	tttcgggtatt	cgcctccgtt	ccctcctggt	cttatttgcg	gtgccgaacg	120
ggcggagata	gaggggtgtac	ccgtttattt	gctcctcgtg	taaggatgcc	gttcagcttc	180
tgtaggcgta	tttatctccg	accgatctgc	gctcataccc	ttctgtgaga	aatgttctta	240
tccataacaa	gaacataccc	gagcaacgca	ctttgtcgat	cttttgatcg	ccgagtggca	300
tgcattgctgt	tttggttcaa	tccgtttgct	tgggctttga	agccgatatg	cagcgcaatt	360
tggagttttt	ggccgatcgg	gctgtgctcc	tcgaggcgtg	agcagacgcg	aatatcaata	420
tgaattgttg	ggatttacgc	tgaggtcgcg	gccggacctc	tgtgtagttc	ttacaatata	480
aacgacttaa	agaaagaatc	agaatgatga	acaaaacgaa	atccaatcgt	gcggccggac	540
caggtatctt	gtcgcactcc	cgttggctgc	ccttatgctt	ctgagcggaa	atggctgtgg	600
gcgggcaatg	ccgtatccga	agtccgggaa	gtagtagaac	cgttgcgagc	gatccccgcc	660
ccttgctcga	tgctcctgac	atctcctgca	gcaggacgag	gacctgtgtg	gttccgagct	720
agatactcca	ccatcttccc	cgggggaatg	tccgaactga	tgcactttct	gagcaagaat	780
ttaagtatcc	ggaacaatct	gcaaagaaca	gcattccaagg	tcgagttgtg	gtccgtttat	840
tgtcgaaaaa	gacggcagac	tgactaacat	acaagtggaa	aaagcgtagc	acccgaa	897

(2) INFORMATION FOR SEQ ID NO:925

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 374 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...374
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:925

tggctgaatt	ccatgtatcg	agactccctg	tcagatagcc	ggtgatgcgc	gcaagcgagc	60
tatccgatcg	ctgccgcata	caggacattt	gtcgtagaca	cacctttgaa	gccacagccc	120
ttacaggatg	ccacaggatg	attaatcaac	catagccgat	gttttcatcc	ttcatcatct	180
tgacaatttt	gaggataccg	atacattctt	cttagcttcg	ccatccaact	ccacataagt	240
aatatgccac	cgccggtaat	agcatggaaa	ggagcctcgc	acttgatctt	ttcactatac	300
ctatcgattc	gcgaacatcc	acatggaaag	aattgacgta	ataatgcaaa	atccggttacc	360
ccggggataa	tccc					374

(2) INFORMATION FOR SEQ ID NO:926

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 626 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...626

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:926

tattcatcca	gataatagct	cggataattg	cggttgcatc	cctgcacatt	tccttgtgtt	60
cgggaaacatt	ccctgattcg	tagtcttcgt	cttcgacagg	atgagacgat	tctcgttaagc	120
gaaatttatgg	gttgccataa	ctgtttatgt	tttgtcaggg	ttagaaaatg	tttctctatg	180
gctgcattca	gcagtgatca	tcgtcgtatt	cgctctgaga	gaggctgatg	ctttccgcat	240
ctttgcatag	cagctttctg	cgacataatt	ttcccaactg	tacaggcgta	cataccgttt	300
cccttattca	ccgaaaccac	aggcacggtc	ttaaatccga	catgcacaac	agcagttcgg	360
tcaattcaca	ggcacgattt	ccgtattcgc	ttccacgata	agaatggaca	cgtccgaacc	420
cgtttttatg	cggtaatgcg	agaggagtta	tttcgtttcc	tgcgatccat	tgagtgattt	480
aatctttctt	ttccataatg	ctgacatttt	ttttgcgtct	aaagctcgga	gtgtgccgat	540
tcgtttcgtg	ggctgttcaa	ggtggccgga	gggtatatgt	caaggcttcc	gaaaaaatac	600
gacttggaac	gaaagtggaa	atgtgg				626

(2) INFORMATION FOR SEQ ID NO:927

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 497 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...497

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:927

tgagacaaaa	acggattgcc	gaatgtattg	gtgacctgaa	gggctgctcc	aatagcatgg	60
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caaagaggaa	gaagatagcc	atacgacgtt	ggcggaaaagg	acaaaagcat	ccagccccaa	120
gacggcaagc	acccccttct	tcttgtttct	tttgcaggag	ggcagtgagg	caaggtaaaa	180
gcataacaatc	ccaatgaagg	gaagccaccg	cactgacata	gaattgcata	ctgctcatta	240
cccacgcgat	atatcgacgg	tccacatggc	caaaatgaag	ccgacagtac	cccaacgcgt	300
ataggaggaa	attcgcgcac	tatatccata	ccggctttct	ccaagcagta	taggctatcg	360
aattgggtgag	agctagggta	ggcatatagc	tctgcagagc	aggagcataa	cgggataaaa	420
aacggagtaa	ctactcagcg	tgaagcataa	ccagcaatat	ggctccgac	agatggcacg	480
ctcccaagag	tttgtgc					497

(2) INFORMATION FOR SEQ ID NO:928

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 484 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...484

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:928

acttcacgc	cgtagcatag	gactcctttc	cctcttcctc	gccactttta	tcttggcgaa	60
gacgaaagga	tcgtaggcat	agcgaaaaggc	ctgggtgaca	tcaccatgat	gatggccagc	120
ttgtagcacg	cgccatagat	accgagcgtg	ctttcccctc	cgccggatcg	tcgaaaagca	180
tgggaaagag	aatctttcgg	cctgattgtt	gaagctgccg	gccaagccca	acagcagaat	240
agggaagaat	aggccagcat	cttgcgcgaga	acgtccggac	gaaatacgcg	gccgcatgcc	300
gccaatgagg	aaaaagcatg	accatctgca	cgaggntgca	aataagttga	tgacgaacac	360
gtaccccaat	tcgtagttcg	ggcggtagaa	gcacatgatcc	actccggatg	taaggcataa	420
ataccgggga	cacagggang	agaaaaagat	cgtaaggacn	atgggtcanc	aggattgaat	480
gtca						484

(2) INFORMATION FOR SEQ ID NO:929

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 964 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...964

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:929

gggtctggaa	cgtctcacct	cgtttagcgga	gctttatctt	ttggataaca	aatccgtaag	60
ctggaggggc	tggaacgtct	cacgtcctta	gcaacgctga	actatcgggt	aaccaaattcc	120
gtaagctgga	gggtctggaa	cgtctcagtc	cttagcaacg	cttgaactat	cgggtaacca	180
aatccgtaaa	ctagaggtct	ggaacgtctc	acttcgttaa	caaagcttcg	tctaagaagt	240
aaccaatcag	taaactagag	ggcctgggata	gtctcacctc	gctaacaaaa	cttttctctc	300
cgataaccaa	atcagtaagc	tagaggggtct	ggaacgtctc	acccgttagc	ggagctttat	360
cttttggata	accaaatcag	taaactagag	ggctggaacg	tctcacgtcc	ttagcaacgc	420
ttgaactatc	gggtaaccaa	accgtaagct	ggaggggtctg	gaacgtctca	cgtccttagc	480
aacgcttgaa	tatcgggtaa	ccaaatccgt	aagctagagg	gtctggaacg	tctcacttct	540
taacaaagct	tcgtctaaga	agtaaccaa	tcagtaagct	agaggggtcgg	aacgtctcac	600
gtccttagca	acgcttgaa	tatcgggtaa	ccaaatcgta	agctggagg	tctggaacgt	660
ctcacgtcct	tagcaacgct	tgaacttcgg	gtaaccaa	cagtaagcta	gagggtctgg	720
aacgtctctc	ttcgtaacaa	agcttcgtct	aagaagtaac	cagatcagta	aactagagg	780
cctgaacgtc	tcacctcgct	aacaaaactt	tctctctccg	ataaccaa	cagaagctag	840
agggtctgga	acgtctcacc	tcgttagcgg	agctttatct	ttggataacc	aatccgtaa	900
gcctggagg	cctggaacgg	tcttacctng	tacaaagctt	tcgtctaaga	agtacccaaa	964
ttag						

(2) INFORMATION FOR SEQ ID NO:930

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 136 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...136

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:930

tgtgcagaca	cttttaagat	aggctctgtaa	ttgtctcaga	gtatgaatcg	tcgcccgact	60
tccttaaaaag	gaggtcgggc	gacttcgttt	ttattattct	gtccggtaaa	cttgtcaaga	120
ggagaccttt	gaaaaa					136

(2) INFORMATION FOR SEQ ID NO:931

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 484 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...484

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:931

gaattcttcc	tttttaata	ttataaaca	ccagtctctg	tttggtgtg	tatcttttcc	60
cttatcaatc	tcagaccaaa	gaatatattt	aaactgctgg	catctctgtt	tcttgataat	120
tcagtaaaaa	taggtttgtg	atattcgta	tatctaaaaa	agatttatat	atctcatatg	180
cagtacatgt	cttaccaatc	cagctgctgc	ttctacaaca	acaagatgtg	caccttttct	240
attgatgttt	ctttgattac	agaaatgata	tcagaagtcc	catttatagc	atctctgcat	300
cttctttgta	aatagagtaa	ggcatactga	tgtactggta	cttatgtcac	tgccgcaata	360
atgctttact	tgattagtgg	gcaaattctg	tgatctccta	ttaatggcat	ttgcagtggt	420
ttgtggtgtt	aaaaaaaaac	ttaaacaaa	aacctctctg	cttcttcnat	aggatctgga	480
acct						484

(2) INFORMATION FOR SEQ ID NO:932

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1058 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1058

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:932

ggtaaccttg	attccatcgc	atgggatcgt	tggcaaaatg	accgttatca	tcagagcatg	60
tacttcagcc	ggtacgccct	cggtacgtaa	tatctcttat	tgagctgagc	ttttccggaa	120
agtatcaggc	ctatttcctg	atcgtaattt	gtagccacat	gcgaagattg	tccggcatac	180
tgtccatgtc	gaaacgccaa	tgggtgaata	ggctaaaatt	gtcggatttc	tgatcatctg	240
tgctaaagag	catagccctc	attatttcca	cgattagcta	cataaaaaata	tgcagagagc	300
cttcctcttg	tgatgtgata	ccccctctcg	catctccttg	ccgtaaacgt	aatcgatgga	360
aatcttgatc	gatactgctg	tttggtcccat	tccaaggata	cctgtcgcga	agccagccga	420
gccagactca	aagctcgctc	ttcgtaaccg	gagcagaatg	tccctgcatg	gcaatgccaa	480
agagcattac	atggctaaaa	gaaaactttt	tttcattgaa	ggtgatattc	cgaattatgg	540
agtttttgct	gtggctgccc	tatggggcat	tgtagaattt	gctgcattta	caaaagtgtt	600
tctgatgatg	tagtattagg	atcaggcaat	ctgaatgaaa	aagccggaat	ttatatctt	660
tccaatcctg	ccatttttaa	gagctgaacg	gctgcttccg	tgcccttggt	gccatgcttg	720
ccccggcac	gctctcgcc	tgaagcattg	tttcctgtgg	aaggactccg	aaaatgactg	780
gtacaagccg	tcaatgttca	actgggtgat	tccctgtgtt	accccttggc	agaatagtcg	840
aagtgggggg	tgtcgccctc	gactacacag	ccgatagcga	tcttgcattc	acttcatgct	900

gttcggcaag	gtatgcgctt	gcataggtaa	gtcgaaagt	ccgggaacat	gctgtacgat	960
gatattgtca	gccgacacac	atgctccaaa	agggtatcga	tagccccctt	catcagtggc	1020
tctgtgatat	gtgattccct	tcagcaacgg	caattcct			1058

(2) INFORMATION FOR SEQ ID NO:933

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1666 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1666

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:933

tagggaatat	ttatTTTTTg	aaggaaatta	tgaatgtgta	attaaaaatga	tcctcaactg	60
gttgatttgc	tatcaaaaaac	actcccccaa	caaaacatgg	gtatttgggc	aacagcgaag	120
gttgggttac	actttacctt	gaagaaagtc	atgaatacaa	atcattatta	tatccgatat	180
ggatgtgcaa	taactcgtat	gataatcatg	tatcagagag	ggaaaggcta	actccaaaag	240
aattggattc	agcattgaaa	aagcggtttc	ctcttttagg	atccaagccc	aggacctttt	300
tccccaggat	caaaggcccc	tttctctttt	gtcaaaaagaa	aagtggaaac	acaaagaacg	360
gaatatttct	ctccccacat	attgtcacga	aaacatgcac	gccccaaaag	tttggacaaa	420
agcatctaaa	tttcttgaaa	tgactattta	ggcaaagaca	atgaacgaga	aggcttactc	480
aaaaaagaca	tgtgagcatg	tctaatatcc	cgatatccgg	agaatacctg	acttttggca	540
aaaagatact	gggcgaggct	ctgcaaaaat	atctgttgaa	gaacaaacta	tggacttatt	600
actacactaa	cgcccttaaa	gcctgcattg	caagtcggaa	agataatttt	tgcattcatc	660
ctgatatccc	actcaatcaa	atgggtcattt	catagctctc	tttgacaaaa	tgcaaatcac	720
tcatttatca	ggagagcaat	gttaggaaac	atagataata	aaggaattcc	tcattcgtcca	780
aaaactttcg	agggaatttc	cctaattcac	ccaaaagtga	cagaatggga	gcattgcgtt	840
gttaggggct	ataggagaat	ttgccaaagca	tgcagaattt	tcactcttgc	tcaaaaagggtg	900
ctagattcat	tgaaggatc	aaccttgat	cgattacata	cggcaatgca	attccattta	960
cgtttcatca	ttatataata	atctagcaaa	agaggggaaa	ctacactcta	tagtggatag	1020
cttattttta	agtcggctct	ataaaaaaga	aaaaagagtt	tatggggata	ccgattatac	1080
cgatttgact	ttttcaccaa	tcgtttttta	caatcattca	ataaggcgct	ttcgtatgact	1140
tttttagctc	cagagtagaa	tatccaaatc	aaatcaaata	ttattttcaa	tgttttttac	1200
caaaatggag	aaattaaaaa	ctgacttatt	gcactctgcc	agataattggg	ttagttgggc	1260
tcaaccaagt	tgcaattttg	cagcaaaaaga	agaagccgat	tcattgaatct	ctccaggaaa	1320
tattttgaag	aaaaagctaa	atttttagtg	atgatggaga	gcagtattta	tgagcaaagc	1380
gaggagatgc	tctcattgct	caaatcctca	tttttagcagg	agattatcaa	agaattgaagc	1440
tccaaaagag	gcattgcttt	tcattggagaa	accattaccg	gagaaataga	tttgtctgtt	1500
gcaaaagaatc	ttctaattga	tacatgcgta	ttctgcagag	aatgagaaac	aacgagattt	1560
gaacagcgta	aaaacgatga	cgcattacca	tctgatataa	acattgatga	cttaacaaca	1620
cataatactt	catatatgga	aacaaaaaaa	ttgcaggagt	tttggt		1666

(2) INFORMATION FOR SEQ ID NO:934

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 510 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...510

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:934

gggttgcatc	gtaattacgg	gcacaagcat	ctcttcgagc	gatatgcctc	gtgctggaat	60
gtattgcat	agtattgtac	gtagtagttg	tagttattgg	gtaggcgaag	aagtcaccc	120
ctttcgtgaa	gatgaatttg	tccgagagtt	gttatggggc	agccctacac	ttgcaggatc	180
tttgatctcg	aatactcttt	cgggttgtag	tcgagggttct	tacctatctt	gtatctgagg	240
ttggtttgg	acttctgtct	ccgatcactt	tgacgggatt	cttcacctga	atagaccatg	300
gtcagtggtc	aataccactt	tataacccat	ttcggaatg	ctgggaagag	attgtaggta	360
gtcgaatgct	tgaaccagct	tcttcgtcag	cggcgatagg	ctgcttcgtt	ggatgccagc	420
tctcgaatca	tcttgctatc	agtacgagca	tgcgacatca	tgtccaccga	aagttcagga	480
ctatcacatt	agttgggttc	tgcgacagtg				510

(2) INFORMATION FOR SEQ ID NO:935

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 549 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...549

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:935

acggcatcaa	acaaatcgag	ctacaggctg	attctcggga	ctcacgtcca	ccggtgccat	60
gattactctg	gaagatggga	caaagatcgt	tacaaaaaca	ccggtatcag	tcgcacgaaa	120
gcttctcccg	gcctgttccg	actcatgaga	aagactatcc	gggcgtagaa	gttgctcgatc	180
tccgataata	aaaaccatct	tagtccgttt	cctctttgat	agaaagaggt	tattaacgaa	240
caacgaaaac	tatgaaccaa	acaacgaaaa	cactgtcgat	cattcttatc	ggtagctgac	300
cttccttgct	ggggcaagcg	caaaactcaa	cgtccccctt	tgtgggaccg	tgctggagga	360
ggtagccttt	tcccgaagaa	atcaaccttt	tcgcagacaa	cgtcagccct	tctttcaaag	420
cctatattga	attggcattc	accgaaggaa	accaaagcca	tgctcaccat	tccgaaatag	480
aagggatggg	gaccaaacc	ggcagaatcg	aaagaaggaa	atcgactacc	gaatgcaacg	540

(2) INFORMATION FOR SEQ ID NO:936

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1631 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1631
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:936

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aaggacgaac cagatcacca aaccggaaga tttccgatca ctactggcgt atcggatgcc      60
tatttctatc gaaagccttt ctgaagacta tcgggagcga acgaatcgat agcctccctc      120
attcgcacct caggcagagg ataagctccg ggccactgta tcttagcagc tacctccacg      180
gtttttctct gaaaggatgg agtggagtta ttttattatt ctgctgttta tcatcccttt      240
tgtgtctttt gccacagata ctaaagagtt atagattaga aataaaaaaga cttagcttaa      300
cgttgtaagt aagactatcg atctgggaga tggctcgttcc atcagatcga aaccggtaaa      360
ttggccaagc aggccgatgg cgccgtgaca gtaccatggg caatacggta ttgctcgcta      420
cagtttgtgc agccaaagac gtaaccccg gtcgcacttc atgcctcttc aggtggaata      480
caaagagaaa actccgccat cggacgcttc cccggaggat tcactcgccg cgaaggcaag      540
cttcggatta cgagatcctg acctgccgcc ttgtggatcg tgcccttctc cgctattccc      600
ggacaattat catgcagagg tattcgtaaa tgtgatctct tttcagccga tggcgaggat      660
atgcccgcag ccttggccgg tctggcgctt cggcggctct tgccgtttcc gatataccgt      720
tcaacggccc tatcacgaag tgcgcgtagc acgtgtggac ggccgctata tcgtcaatcc      780
tacttcgagc agctcgaacg cgcagacatc gacttgatgg tcggagccac aatgacaaca      840
tcatgatggg cgaagggtgaa atggacgagg tacaggaatc cgaatgctcg aaggcatacg      900
cgtggcacac gaagccatca aggtacagtg caggcgcagc tcgaactatc cgaagctgta      960
ggaaaacttc aaaagcgtga tacagccatg aagtaaacga tgaagacctg cgcaagaaag     1020
tgcacgacga tgctatgctc gtgcctatga ggtggctacc agcggaaaccg gcaaacacag     1080
cgcggcgaag cttttgaaaa gatcgtggaa gagttcaaag ctcaataacg gaagaagaac     1140
ttgccgagaa ggccgaaatg atagctcgct actaccgatg ttggaaaaag aagcgatgcg     1200
tcgtgccatc ctcgacgaag gcaaagcctc gatgggcgta agaccacgga gatccgtccg     1260
atatggatcg agacgactgc ctaccgggcc cgcattggct agctatattc actcgtgggtg     1320
agagcagtcg cttacgaccg ttacgcttgg tacgaagagc gacgaaaagc tctggacgat     1380
gtactcaatt atacgaaaga gcgattcctg ctgcactaca attcctcctt ttctctacag     1440
gtgaagcccc tccccaacgc ggtgtaggcc ccgcgagatc ggtcatggca atttggcgca     1500
tcgcgccctc aagcgtatgt accgacggac taccctatg ttgtacgtgt aatcagcgac     1560
attctggatc caatgggctc gtccttcgat ggccactggt ctgcgccggt acttttgctc     1620
tgcgccgatg c                                     1631

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(2) INFORMATION FOR SEQ ID NO:937

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1191 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double

- (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1191

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:937

tcatgtccaa	ttcagaaaaa	aagtgtcggc	ttcggaaaaa	tcgggcaatc	acggcgtgtc	60
agatagattt	tgctcgtgta	ggncagcatc	tgctcataac	ttgtgctccg	ccgatgacaa	120
aggcntctgc	ctctttcgcc	caccagccca	atgccacttc	gggcgaagct	tgccccattc	180
gggctccccg	aaaatctgct	gcatacctgt	taggacgata	ttgcgtctgt	tcggcaaagc	240
accttggggc	gggagcggaa	tgtgcggcta	cccatgataa	tgctatgccc	tgtgtcattt	300
ccttgaatcg	tttgagatcg	gccggcagat	gccagaggag	gtctttttgt	atccgatagc	360
cccattctcg	gctatggcaa	caacgattga	aacatattgg	ataggtgagg	aaaaactgaa	420
tatcgggtgga	aaacattccg	tagactgcta	caacgcccgc	aatgtgcgga	tcgcgatcat	480
acccttcgag	cggaaagtctt	cgtatcggaa	gtcgaagaga	tcggacacct	ccggattcat	540
accattcggg	gcaacgctct	cggctcacga	ctcagttgta	gctgtaccgt	tcgaggtggt	600
taagatagat	atgggcgctcg	cccagtgat	gtacgaacgc	ccgggtttca	gccctgtgac	660
atgagcgatc	atttgtagca	ggagtgatac	gaagctatgt	tgaacggtat	gcccagaaaa	720
gaatcggcac	tgcgcgatag	agttgcaggc	tcagccggcc	gtcagcgaca	tagaactgca	780
tgaacagtgg	catggaggca	gatgcatatc	ggcaagctgg	cctacattcc	acggcatacg	840
ataatgcgcc	ggctgtccgg	ttcttcgcgc	agctggcgca	gccctcctgc	atttggtcta	900
tatgccctcc	ccgatagtcc	ggccaactgc	gcactggtag	ccatatatag	gtcccaaata	960
gccgttctca	tcagcccatt	gttccaaatg	cgtacgccat	gttcctgcag	gtaatgcacg	1020
ttcgtgtcac	tctgaggaac	caaagcagtt	cgtatataat	ggacttcaag	tgcaatcggt	1080
ggtcgtaagc	aagggaatac	cctcttcaag	gtcaaagcac	atctgatgcc	gaatacgtcg	1140
atcgtaccgc	taccgcgtgc	gtcttctttt	cgtactcctc	gtcgaggatg	c	1191

(2) INFORMATION FOR SEQ ID NO:938

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 445 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...445
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:938 ;

tatcggacat	cctcaatata	acggccatgg	ccgtactgga	cagccacgct	gtctgatttg	60
attcaggtat	aaatccgtac	aacaaataga	ggctgtttac	tgcagaaaacg	agcctctatt	120
tttcccttgc	agctataaga	aagcctacgg	aagatgctaa	ggctaaaaaag	caaagaggct	180
gctccgcacg	atttgcgagc	agcctctttg	tatttggggg	ttctatcttt	cggaaaagtt	240
cccgaaagtc	gccttttatt	gtccttaaat	ccgatggact	gactttactc	ggtagacatt	300
ctgcccgcct	gagtcgcccg	gcggttctgc	cggcttccaa	gagggcaggt	tggcttccgt	360
cggaatgtag	atcacggctc	tgtcattcag	gcgccctgct	tgacgccacc	catagatact	420
gaatgtattg	tgggcgtaaa	gcttg				445

(2) INFORMATION FOR SEQ ID NO:939

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 537 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...537

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:939

gctcaagatg	cttgccatga	gcggtgagga	cggaggaatc	aagagtctgt	caatctcaac	60
atcgtagcgc	tctctttgag	ctatgagtat	gacccctgga	ttacctgaaa	gcgcgcgaga	120
tgctcagcaa	gcagcgcgac	ccgttattaa	gaaacccgtc	ggggaggatc	tgctgaatat	180
gcagacaggt	attttcgcta	caaaggacgt	gttcactttg	ccataggtag	accctaaga	240
gaattgccga	gagcatcccg	gcagatgcgc	cgcgatgccg	gcagttcaca	gaggaggcaa	300
actgatcgat	gcagaaatcc	atcgtcgcta	ccgtctctat	ccggcaatta	tgtagcatgg	360
gatcttctgg	acggatgcga	ccacgccggt	tccattatag	caaggaggaa	aaagagacct	420
ttgtaaacta	tctgtccgca	caatcggcaa	agtggagatg	caggataagg	atgaagagga	480
attgaaacga	tggattctga	tcattgtatgc	caatccggca	aaggcatat	tatgctg	537

(2) INFORMATION FOR SEQ ID NO:940

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 492 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...492

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:940

ggaaggggta	ttgtgtaacg	gtctaataa	aacgaaaaga	ttattgccgg	agagttgtgc	60
aacggaaaag	ccatgaatcc	gatagtcggg	attcatgggt	ttccgtaga	gtgagggaga	120
ttgttgtag	cttagcaatt	cctttacatc	gtactgatga	ggctgccatc	tgctttgcct	180
gccaattctt	tggtgggtact	cccattactt	tgcccatcat	tttactgtca	gtgacgccga	240
gacgggtgatt	atttcctgta	agatgggggt	cagttcctca	cgtgagagtt	gtttggtagg	300
taggcctcga	ttacctcggc	ttcggcaaa	ctcagggttcg	gccgttcggg	tctgccgttt	360
tctacaaaga	tggcagcact	ctcgcggcgc	tgttcaccat	cttttgcata	atcttgaggg	420
ctgcattctt	ngacagagtg	catcgctgcc	tttagctgtc	ttggcttcga	gaaattcttt	480
cttcactccg	ga					492

(2) INFORMATION FOR SEQ ID NO:941

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2202 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature
(B) LOCATION 1...2202

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:941

tgcgaaagga	agatcgagac	aatctttctg	catgaacgta	atccgattgc	caaattctcc	60
gaacgtgctt	tctgtccccc	tatcctcatc	atttccaaga	aagatcgaca	cccgtcacct	120
gcttgactga	agggatatgc	ctgcatattc	gatggctaaa	tcacccgttc	cggtagccac	180
atccagcact	gtatgtgagc	gaaaggctcg	atcatacggg	tagccttctg	ccgccatata	240
cgatcattcc	ccatgaaaag	agggtgattga	gacgatcgta	atgtccggcg	atatattgaa	300
catggcctct	acctgttcat	tcttggggca	ttcgggtgta	taggggttat	tctttcagga	360
ctttgcatgg	cacatgattg	ttcgacagtc	agcgactgct	aacgcagata	ctccgttatg	420
ttcttttcta	ttctttctgc	cgattgctca	ggtctgcctt	ttcgaagggc	ttacctacca	480
ctcgctcgta	aattctatgt	accgctccga	cacactgtcg	cagtatgctt	ccgtcatttc	540
ggatatttgc	ggccgggctt	gccctggaaa	ccgttctcga	tcagccacga	cgaacaaact	600
ccttggataa	ctgcttctgg	gcttcgcccc	gttcgaacgc	tcctgatagc	cctcggcata	660
gaagtagcga	gaagagtcgc	gcgtattatc	tcgtcgatca	ggtagatctt	accgtccttc	720
ttgccgaatt	cgtattggta	tccacaaaaa	taagccccct	ttcagcagcc	atttgagtac	780
cgcgtcgaaa	agtgcgtaag	tatagcggtc	tatctgctcg	tagtcctctt	tcgcaccagt	840
ccctgagcaa	tgatttcctg	acgagagata	ttctcatcgt	gacctcatcg	gccttggtcg	900
taggggtgat	aatgggatgt	tcgaaacgct	gttttcgcgc	atgccctcgg	gaagaggcag	960
accgcaaagc	actcgctcgc	ggcagcatag	gcacgccatg	cacttcctgt	gatgtagccg	1020
cggatgacct	ctcgaccttg	aacggttcgc	aacgggtgtc	gatagtaacc	atcgggtcgg	1080
cgtagctatc	ttccagttcg	gaactatatc	gcgagtggca	tcgaggtgtg	tgccgctatc	1140
tgattgagta	cctgaccctt	gtaagggata	ccggccgaag	gactacgtcg	aaagccgata	1200
tgcatccgt	ggctatcatg	accagagatc	attctccaac	gtgtatacgt	cgcgcacctt	1260
gccgtgatat	acggtttctg	tcccggcagt	ctgaagtcgg	tacgagctaa	tgtttctttc	1320
atctgaattg	tatgctaagt	gatttcgta	aatatcgata	tcgcctgatt	cttatggttt	1380

gcgcaacgac	agctgcggt	tcggcctcct	ttttccgttc	gcatcgtagc	ggtcgtaggc	1440
atccaccaca	cgctgtacga	gcggatggcg	actatatcag	cggttgga	tgcaatatag	1500
cctatccctc	tcgttccttg	aggatattca	gagcctgacg	cagaccggag	tgcaacctc	1560
tggaagacg	gtctgcgtaa	tgctgcgggt	gacgatcatc	ttggcattgg	caccaagcgg	1620
gtcaggaaca	ttttcatctg	caactcggtc	gtattctgag	cttcgtcaga	atgaccacgg	1680
catcgttgag	cgtacgtcct	ctcatatagg	ccaatgtgct	atctggatga	tggtgttttc	1740
gatgtactct	tttagcttca	cggcgggatc	atctcctcca	gcgcatac	cagaggctgc	1800
aagtagggat	cgacttatct	ttcatctcac	cgggcagaaa	tcccagcttc	tcgccggctt	1860
cccggcagga	cgtgagagaa	tgatacggcg	cacctgcttg	cttttcaagg	ccggacagcc	1920
agactgatgg	ctacgaaggt	cttgcccgtt	ccggcagggc	gatggcaaaa	acgagggtcat	1980
tgccctcgaa	agcctccaca	agtttctgcg	attatcacct	ctggcaatga	tgctcttgcc	2040
tcccgttcca	tgaggatag	atgtttagg	acatcgtcag	cgggcagctt	ggcacctgt	2100
gcaatgccag	gatcacatct	tcgggcagga	ggttgtactc	acggcaatac	gccacctcgg	2160
ctccagaact	tccaggaaac	gatccgtctc	gcgcgaatcg	cc		2202

(2) INFORMATION FOR SEQ ID NO:942

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 784 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...784

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:942

gcaaaccgat	aatagaaata	gatatgagag	catattacga	actgaagcgc	gtcgagacgc	60
atgcgataag	gaagcagaac	gataccagaa	ggacatcttc	gctgtttgga	tcatgtacgc	120
aacaattatg	gcgacatgat	tttcgaaaag	ttgagaccca	tctgatctat	cctggcagcc	180
ttggcaataa	gatactcgct	tcctcatcgg	caagaagcag	atctcttcat	ccaagcta	240
gactcgacag	gccggccgac	tctccatctg	atcgagcagc	ttaccgactt	cggcgctcct	300
tgctgatcag	tgctttgctt	ggctttgtta	agcgtagcat	cgtcgccgtt	tccgcaggcg	360
tcgataat	cccctattct	gtcttttcgg	gtaggaacat	tttatgtcag	cggctgacaa	420
agcgatataa	ttgttgctctg	ctgaaacaat	tctccatgaa	cacaaaagaa	tatgtgctgg	480
actttatcaa	cgcacgaact	gtaacctttt	ccttaccggc	aatgcgggca	caggcaaaag	540
accctgctgc	gccatatagt	ccaacacaca	ttcaaaaact	gcatagtacc	gtccccaccg	600
gaatagcagc	ggtgaangcc	gggtgggtga	cgntgcacgc	cttttacagc	ttccgccggg	660
aacattcatt	ccgtacgggc	tatctccgaa	agtgaacggg	gcgtaaactt	ccctacgcc	720
acttcttttt	ggaaaagaca	cgtatgcatg	cttcgaagcg	caaattgctt	cgaacatgg	780
agnt						784

(2) INFORMATION FOR SEQ ID NO:943

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1029 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...669

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:246

```
ccgtgcgcgt agagctaaaa tcctctatag ggataaaggt cgaatcagaa ctgtattttg      60
ctcaagcaat tggctataaa tagcattctg cgcttattga ttttgtttta ttatctgcat      120
tcccagaggg aagagtcggc tgcagggaat aaggatcgca gtggaatcgg tttctgcctg      180
tcgcacatcg ctcagcaatc cacaggcttg agttgccagc tccctatctg ctcgggcaga      240
tagaaaaagc acccaaaaaga attgccgttg cagcaagcaa caaccaaaaa cgagcatttg      300
attacgcggg ccttccatag aataatcttg tgtcggattt ctctctttgt agaagaatca      360
aaaattgtgc gcaaagataa acgttacaca agaacttgta ttaaccatcc tgaaacgaca      420
ggacaatcgc atttgaaata tagcctgatg atgctccgtc cggaataaac acgaattaat      480
gtgttagaga cctaatagta gaaggaagag accaaggata cagagtacaa cctttcaaaa      540
cgatagccct ctgtcgaaga gaccggcctc ttcggggaat tttctgtatc tgtgttgcg      600
ttactatcgg aaattacaat cacgggtgtc tttctatata agaaatgagt cctgatcttc      660
ccaacaag
```

(2) INFORMATION FOR SEQ ID NO:247

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 821 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...821

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:247

```
tggccgaact ggctcagcag atccatgcag aaggtttctt ctttctcgcc tatggtcgat      60
gccggtctat cgggtcatga acgtcaggta ggacaaacgg taagactgtt cgccccgaca      120
tctacatggc ctttggtatc tcaggtgcat ccagcacttg gccggtatgg aagagagcga      180
ttatatcatt gccatcacia ggacaaattc gctccgatct tccaggtggc cgatcttggt      240
gtagtggcga cttgcacaag attgtacca ttctgacggc taagctgcgt tctgcatgca      300
ggacaagtaa gagcctgtta gtataacaaa cttgttagag gagcgatgag gcgaagggt      360
tttgtggctc gtcgcattca ttcggctcct tttcatccat cgaagagagt tatggaattt      420
cacaatctga tcatccaatc gaagatggta tcacgacgct gaccatcaac aaaccggaga      480
cactgaacgc ctctcctctg aagtcctttc cgaattgaag tcggccattg ccgttatcgt      540
acagaaaagc ctcgagtgtc gatcattacc ggaagcggca aagcattttc gcaggagcag      600
acatagccga gatgcaacat ctgagtgcag ccgagggaaa gcctttggag ggcttgagc      660
agaggatatt cgaaggatag aagaatgcct ttccctgtta ttcgagccat caatggcctt      720
```

gctttgggag gcgagcgaa ttggccatgg cttgtgacat ccgcatagct tcggcttaaa	780
gcccgtttgg tcaagcccga agtcggattg ggcacaaacc c	821

(2) INFORMATION FOR SEQ ID NO:248

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 803 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...803

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:248

gctgcgatag	cgctcagttcg	acgtgagaaa	aggaaaggga	gcttttagcgg	cagaggcagg	60
attgctat	caatatatcg	gataagccgg	cgaataatcg	aaaccggata	tcaccataaa	120
aataacggct	acgatgcggt	tgaaccacgt	atgccaacga	cattgatacg	attgcgtagc	180
aggctgaaaa	gataaggata	agagaccacc	agccaatcgc	ccccaaagct	atacctaaca	240
tgccgaggta	taaccgacta	acatcctccc	cggaacatng	gtgacgaagt	tgaacgggaa	300
tatagagcga	taaaaaagaa	aatgataaaa	gggttggata	gcgaaggcca	aaagagctta	360
ggacggatatg	ccatacacag	tagttattat	cctatcatcc	accttgaagg	tgggtgcagt	420
ccgatacaga	tatataccga	aagaaacatg	acgacactgc	cgagaagctg	tagccaagcc	480
tcgttgcttg	caatgaagtt	catcaccaaa	cctattccca	gatacgtgac	agtggcataa	540
agagatcgct	aagtatgggt	ccgataccgg	tgtagaatcc	atcgcgccct	ccctgtgcag	600
agtccttcga	atacacaaaa	ttccgatcgg	ccccatagag	ccgacacgag	aatgccaatg	660
agaataccgt	atagaattga	agtggcacca	tgccgtagaa	aggcaaaatt	tccttattgt	720
cctgctaagc	cggatgcaaa	gataaacatt	ctaccctgtt	atataccta	ccgtttttgc	780
cggattcttg	aaaagaaaaa	gtc				803

(2) INFORMATION FOR SEQ ID NO:249

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1169 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature

(B) LOCATION 1...1169

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:249

gggagagcgc	atagcccgat	ttgcagatat	agaagtactc	agctatcgac	cgacctcttc	60
ggcacattga	cccctaagca	gaggatgctt	tgctaccact	atcggaagca	gccctgcgag	120
gacgggatat	tacaaccata	cagaactccg	ctacaacctc	tgggtacgca	gtctgatgga	180
gcgtattttac	acccatttag	caagtcggaa	cgaaccgacg	acttttgccc	tgctggaaga	240
atacccttct	gcatctgggt	tgccaatggc	attcaccacc	attacagcgg	agccaattca	300
ttgcccgttt	cagtcggtt	ttcttgcggg	cagccctgag	agagcgggcg	tggagctgga	360
gccggaagag	caggtgcttt	tggagcgcgt	atgtacgata	cccgatthtc	tacccaaaca	420
gaccgagcag	agcggcgaag	agatattatc	aaggcttctt	cggatcaattt	ctatgcaccg	480
ggtatcaccc	agcccgaagc	ggaaaagccat	tacaaaaacc	tgatagaagc	tcttcccgaa	540
acgagaaaag	ctgtccgccc	agcttcggac	tgaatacccg	tctgatcctt	cgacttcggg	600
cgaattgaaa	gacgaggttt	gctgtataga	cggattgacg	gcccggccat	agaagctgta	660
gtcgcttctt	tggaggtgc	catacctaca	ctgagaacga	ggaacaggcc	gcatgcatac	720
gactgctgtg	cgactttacc	gcacaggaga	catcaggctg	tacgaccggt	tctgtattcg	780
ctgggtgaaa	acaatcgta	tcggatcgat	tttatcaacg	gattcaccga	agttatgccg	840
atccgatagg	catacacggc	agttgggagg	gactgggtaca	cagcaggacg	aagaagccgg	900
cagacgtacg	cgcatcatca	gcgaacatgc	cgttgggttcg	aagcacattc	gccgatcgac	960
gcacgtttcc	gcaagaagaa	ccccatggta	tatcggtctac	ggtgggtcaat	gtactgacca	1020
tagccggcgc	agctatcctg	ccacaccgat	aggaatcaac	ctccgaatgc	cgactggatc	1080
gtgccgaaca	cggatccaag	tccgtcacta	tcgacatata	acggatgata	caaccatgcc	1140
gcgcgagggg	caggtctgta	caggagtta				1169

(2) INFORMATION FOR SEQ ID NO:250

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1111 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1111

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:250

gcgatatact	tgatggcata	gtcaagcgaa	acggaaaggg	gttcgggtatt	tttggcaacc	60
ctacaaactt	gcctgcatgc	ttgatataag	ggccgaagggt	cctacgggcta	ccattacatc	120
cgcatactca	tattgtccca	gtttcttggc	aggagggaata	gttccaaagc	ttcctccagc	180
gtgatggatt	cgatggctgt	cccggctgga	gcgaggcaaa	ctgcgccttg	ataccgtttt	240
ccttaccgtg	cgacctttct	gcaccatcgc	tccgtagcgt	cccatttttg	ctacacagat	300
tctccgggtca	caggatccgt	acccagcatt	ctttcaccga	tctctggctg	ggatcgaact	360
cgcatgcttc	tgccaccaac	gggtggaatt	tgtgtagaac	cgaccgatct	gcttctgcc	420
ttgcagtttt	ccttcggcta	ttgggtcaaat	tctttttcca	ctttggccgt	gaagttgtaa	480
tcgatcacct	agggaacgaa	gccacgagaa	agtcgttcac	cacaagcccc	atatcagtg	540
gaggagctta	ttccggtcct	gtccgttcag	ttccgttttg	atcgtctcgt	tatggctttc	600
cccttgtggt	attccagcag	gatgtattcg	cgtgtttgcc	cggtttgctg	ccgcgtacta	660
cgtattcgcg	attctgtatg	gtttggtagt	gggggcatag	gtggatggcc	tgccgatgcc	720
caactcctcc	attttcgaac	gaggctggcc	tccgtatagc	gtgccggacg	ctgcgtgaag	780

ctctcgttgc	ttttgcatga	tgcagagaga	gcgtatcgcc	ggctttgaca	gaggcaatag	840
ctgtcctcgc	gtatttgcag	agccatgttc	ttcgtccgaa	tctcacgata	gactccgagg	900
aaccgcgcga	atacgatcac	ctctccttgc	ggctgagggt	ctctgcaaac	ttgtcgggtc	960
cgattgttat	cgctgttttt	cgaggatggc	atccgccatc	tgggaagcaa	tggttctgcg	1020
gcggatcagt	gatatagctt	ttgctctttg	cngggtgccg	tctatctctg	ctctatgtta	1080
taagtaggac	ggatggcttc	gtgggcttct	t			1111

(2) INFORMATION FOR SEQ ID NO:251

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 823 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...823

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:251

tctgcggatc	agcaacggta	cttccgcgac	ctcggcaaaag	agtatgccgc	atcaaccctc	60
ctttctccga	acagtgaag	acnacggcag	gcttacagat	cggactctct	tttgaatata	120
cccattcttct	ctgccatgca	aacgcaaata	gcgttcggag	cagtcgcctg	caaatacgct	180
caagcgagct	tcgactgtcg	aagagaaaaa	agccctctat	aaagagatca	ggcaagcata	240
cagcatgccg	tggcagccga	taaggccatc	gcagcagccg	aaaacagcaa	ggccctacgc	300
tcaaggcata	cgaatacgct	cgcgacagct	tcgaggcagg	gcgttgctctg	cctacgaata	360
tgccgaggca	aaaacaaaaat	acgccctcag	ccagtgggaag	aacttcgtgc	caagtatgac	420
ttcatataca	aagccaaagt	ttggatttct	atcagggcaa	agacttctaa	aagactcaca	480
agaaagctat	tttgaaccct	cagcgagggtg	ttcatgagat	ctatcaggac	cccgcacatct	540
aggggtgctgc	gtcaaaaattc	gttttgccac	agcacccttt	taacgtcatt	cgacgtaaga	600
aaacgccaat	gaataattct	tttcctgatc	agagattatg	ccctaagatt	ctccggcaaa	660
tgtatagggg	gtatcctgct	tctgctggat	cgaaccaaca	ttgaaattcg	gattgctttt	720
gacagaatgt	tgcagccgca	caggaagatg	ggctatacca	cagggcaaga	tgccggtact	780
ccgtgaggat	gatgggctac	ccccgtatgg	ctcttcgagg	tac		823

(2) INFORMATION FOR SEQ ID NO:252

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 563 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...563

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:252

ccatggcact	ctgatgatcg	ataattccag	tgttttccgt	atgcaggaaa	cgttccctc	60
gtggtgccgg	aggtaaattgg	ggatgatgcc	ttggtacacc	tcgcaatatc	atctccaatc	120
cgaactgtac	aacgattcag	atggtggggc	actcaagccg	atagaagacc	tttctcacat	180
acgtcgtgta	cacgtgccac	gtatcaggct	gccagtgggtg	caggtgctg	gggtatggcg	240
gagttgtaca	gcaggcggaa	gagttggctc	ggggagagaa	gcctaccgtg	gacaattcgc	300
ttaccagttg	atgtataacc	tgattccaca	gatcgacgtc	tttcggacaa	cgactacacc	360
aaggaggaaa	tgaagatgta	tcgcgagacc	aacgtatcat	gcatagcgat	gtgatgggtga	420
gtgcaacctg	tgtgcgtgtg	cantgatgcg	tgcccacttc	gaggctatct	gggtggaaac	480
ggaacgcccg	tcgctccga	agaagctcgt	gcagcctttg	ccaaagcttc	ccggagtgtg	540
cttggtgccga	tgagcccgtt	cag				563

(2) INFORMATION FOR SEQ ID NO:253

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 442 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...442

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:253

taggtattta	atgtcggatt	tatactaaat	aagtgggtatt	gggaatactg	aattgcacat	60
gaaaaagccc	tcgatacata	ggtgctttta	ttcattttata	tttgtgtatc	agccgattat	120
tccgtgtgtt	tatggtatga	tcaatgaaca	aagctatggc	acgacaagga	aaatcatcta	180
atgaggccct	tgaaaagaga	aggttatcgc	ttaggttgca	acttatacaa	agggatgaga	240
gtggaaccgt	gaacatactt	cttgccggcag	cagcctatga	actcaagaga	gctagaaggc	300
tcttttggac	tttatcaaaa	caatctgcga	gatactgttt	gctacaatat	ctccctaaaa	360
gggacttttt	aggggatgac	tatataggga	gttaaacaaa	gctatatagc	aatcggccca	420
atcctatata	gcaatcaaac	ga				442

(2) INFORMATION FOR SEQ ID NO:254

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1245 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1245

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:254

```
gccccacgat  gagaagaata  gaattgtaag  caatcctcca  cgatctcggg  tctgatctgc      60
tttttcacca  cgatgagaag  aatagaattg  taagcaaaaa  tgagtccgaa  ggaacgcatt     120
atcatgggag  tagaccccg  cacaatatga  tgggctacgg  gatgcttcac  gtcgtgggga     180
atactccccg  actcatgcta  tgggggtaat  acgtctggag  aaattcgaca  atcactatat     240
ccgtcgaaac  gcatattcga  caggattaca  ggtctgatcg  atgaattcct  accgatgaaa     300
tggtctatcg  agcacctttc  tttgggaaga  atgtacagag  tatctcaagt  tagggcgggc     360
tcaggggtgtc  gctatggcag  cggctttggc  tccgacattc  ctattacgga  atatgctccg     420
atgcgcatca  agcaagcgat  tcaggtaatg  gcaatgcgag  caaagagcag  gtagccggca     480
tgctccaacg  tatttacgaa  tacctgacga  acagatgtta  cctgaaatgg  atgccacggc     540
ggactggcgg  ctgccgtctg  ccacttcttt  cagacgtcgg  gacctatgct  cgttcgggcg     600
gatcggcagt  caagaattgg  aaagacttcg  tcaaccgaat  ccggataagg  tacgctgacg     660
tttgtgtcgg  cctctttgtt  ttccttaaaa  acggaaccgg  agaatcagag  caaatcactg     720
gccaattcgc  tcagccgctt  cgttcgccct  tgatcagatt  gacatgggcg  aagagcgggt     780
gcccttcctc  ctttcgatca  tataggccaa  tccgttgctc  tgggcatcga  gggttgagag     840
tcgatctgtt  cgatgtcgcc  tgtaaaaatc  agcttgctac  ctctcctgca  cgggtgataa     900
tcgttttgat  ttcgtgagga  gtcaggtttt  ggcttcacg  acgataaata  tcgtttccga     960
cacgctacgt  cctctgatgt  tgccaaagct  tcgataacga  gcttttcggg  tttctgcatt    1020
tcgtccagct  gcggagttcg  ctgctatttt  gagccaactg  tcctttgatc  acattcagtt    1080
gtcgaaaagc  gggtgcatgt  atggtgccac  tttggctttc  tcatcgccgg  caggaatccc    1140
aagtccttat  tggccaatga  gacgatgggc  cgtgcagcag  gatttgtttg  taggactggt    1200
cctgactgag  agctgctgcc  agagcagcaa  tgttttgccc  gtacc                                1245
```

(2) INFORMATION FOR SEQ ID NO:255

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 522 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...522

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:255

```
ggctgagagg  tcaattcaat  ttccactctg  caccgtcttt  cgtatcttta  tcgtaaattcc     60
cagagccgtg  agttcgtcgc  ggatccttat  gcttgctgcc  aatccttacg  agctttggct     120
```

tcggctcggg	tacttaggag	cagatcctcg	ctttgccgaa	ggcttcgctg	ccaccggctg	180
aagacgccct	ttcatccgca	taccaagcag	gtcgaacagg	aagaggcgga	atgtagtacg	240
cagttctcta	agttggaaga	agtaatggta	ccttggtccat	tgtgtacagc	attattgcgc	300
gcgctgcata	gaaaagggtc	gctattacca	ttggactgtt	cagtcatact	tcatggcata	360
gtagcaacgc	ttacgcagat	cgccaacctc	taggaggtcg	tgtcggcagt	cttcaatcca	420
tcgagcaagg	ctgctgcata	cgcaagcgct	ccaaaccctt	ctctgccgct	tccagagctt	480
cattgctgaa	tctacagtgc	ctcgatagtg	ggctccgaga	at		522

(2) INFORMATION FOR SEQ ID NO:256

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1137 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1137

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:256

gggccaacc	cgtagcagga	atgaaaagaa	gcagaaagag	gatccggaaa	tccggatccg	60
gtgcaaggat	gttttcattg	tttctttcgg	attatcgggt	gtttcgaaca	ggcgttccag	120
actcatttcg	tcttgatca	atacctgctc	ggtttgctac	cgctctgcgg	cgaacgata	180
ccggcacctt	ccagttgtcc	atcaatcgcc	ctgcacgggt	gtagccgata	ttgaactttc	240
tctgggtatta	gaggtagatc	cctgttggtga	gtttactacc	attcgggcta	cttctcgaag	300
agaggatctt	tctcctgcgg	attgaatgct	ttcggtcctc	cctttcacct	tcgggcacat	360
actccggcag	ctcataagcc	gaggtatagc	ttcctgtagc	gaaatgtggg	gagtgcgggc	420
ttcgcactcc	ggagtatcga	gaaagcgcat	tgcagacgta	ccgtgtcttt	tccctgatag	480
aaaagcatat	tccacggccg	acgagctgat	tggctcccgg	ttgatccaga	atggttcggg	540
gtcgatcatg	gagaatactt	tgaaggcgat	acgagcagga	aagttcgctt	gatgataacc	600
gtgatgatgt	ccgtggaggg	ccgttgggtg	gctaccacat	gtgaatacct	gcggcacgcg	660
ctttctgggc	gatgcgggta	atcggaggtc	tacctcctta	cccgatgtca	tgatcagatc	720
ggcaaaactca	tcgacatcag	cacgatatag	ggcaggaatt	tatgaccgtg	caagcggctg	780
agctgccact	gataatctga	tcgttgattt	ccttgatgtt	ccgaaccctg	gctccgtcag	840
catgcggtag	cgattgtcca	tttcgatgca	gagagagttc	angtgggtac	caccttggtc	900
atatccgtca	cgatggctct	gtcctcgtcg	gaagcttggc	cagatagtga	cgttcgatgg	960
cttcgtagac	ggcgaactcc	gcattctcgg	gtctacgagt	acgaacttca	gttcggccgg	1020
atgcttcttt	acaagaggga	ggtgatcatg	gcattcagac	ccacggattt	cccttgctcg	1080
tagcacctgc	tatcatgagg	tgaggcatct	ttgcaaaggt	cgaagataac	acttcgt	1137

(2) INFORMATION FOR SEQ ID NO:257

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 366 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...366

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:257

```
gttgaatgta nagactgaat tcggccgatt cttcggattc gaaacgctgc ggctttctat    60
ttcgacaacg aactcatcga aaaaagcttg ctcacagcga tgaattgaag tgggtacaatg    120
actaccagca gtgggtgtac aagacgctgc tcccgaactg actaccgagg aaagagcttg    180
gctcaaagag aaaacttgac tatctaacca caaaaatggc attaatacag agtggttaggg    240
gctttccctt ataatcggcg aggatacctt cctcgccgaa aatgccacta ttgtggcgat    300
gtagtcatgg gcaaaggctg tagtgtgtgg ttcaatgccc gtatgcgagg cgatgtcaat    360
tccatt
```

(2) INFORMATION FOR SEQ ID NO:258

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 626 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...626

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:258

```
aaacttttgt gcatcccnaa ggatgcggtg taggttggtt tgttgccgca agcttgagga    60
attattttgt ggcttttcga tatgtcgatt gccttttcaa gtattcaggt gggtataacg    120
ttggggatcc acctcttccc attccgacag agaagttaag cccaacggtg ccgatggtag    180
tgcgtcacag tgggaggtag gacgccgccg ttttttaaga agcgtgagag agaggggggg    240
ataggctctc acctcctccc ccggaaaaaa aggtgaagga gagagtctcg aatcgaggct    300
ctctcctttt ttattttctc tctctccaaa aatcattttg ctttctctct attcctctat    360
atgctttctc ctttctctc ctttctctcc tttgtttccc ttcattcttc tttccttttc    420
tcttttcata ctcagtcgga ccagcaaagg ataatcggcc atttgctttc ctcccccttg    480
cttcgcgtta tcttataaag tgagttcgat ataagcggtt tggtgccgac tctcataaga    540
tttgtcgatc aatcctttgt tgggatatta actataaccg atcagaaatg aaagggaaaa    600
agtttgacgt ctcatcggtg gtcgaa
```

(2) INFORMATION FOR SEQ ID NO:259

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 468 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...468

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:259

ggcaggctcga	gatacgagtc	ggggccggcc	accacatcca	cgtgatgttg	cggatcaact	60
cctccttgac	gcgctcggcc	atgcagccca	ataccccgta	acgagacggg	aagaagcccg	120
tcttttcttt	cgtagcgagt	ggtaatagcc	agccggttca	gcactttctg	ctcggcattg	180
tcccgtaccg	aacaggattg	accaggatcg	tatccgcctc	atccacgttg	tccgtgaggt	240
tgtagcgtcc	atctgcatta	cggacgctac	cacctcactg	tcggctacgt	tcattggcag	300
ccataggctc	cgatgtagag	tttgcgctct	tgtttattct	cggggattta	gagtcctgcc	360
gatttgttcg	atcatgcttg	tatgttatat	caattgtcgt	attatctcga	ttattaccga	420
caaaagtttg	taaaactact	tgtgctcatt	atgtttgtga	tggaaaag		468

(2) INFORMATION FOR SEQ ID NO:260

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 2146 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2146

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:260

ccactgacct	ttcctctgtt	caggaggcgt	tcgatgagca	tttcctcggt	actttgcaga	60
ttcagcacta	tgtccacctt	ccatccatga	tgtgcgagat	cgtctccatg	gcttctgctt	120
ggggaatgg	acgtggaaat	ccgtcgagat	aatccccctg	gtatcgacca	aagtgtgat	180
gagcttttcc	atcatgccac	gatcaggctg	tcaggtagca	gggtgtccctc	gttgatgtag	240
ccggcgctgc	ttggcccagt	tcgggtctgag	ctttgatttc	ggcacgaagc	aacttccggt	300
tgaatatatgc	cgaatccat	atcgacggat	cagttctctc	cttgggtgcc	cttcccggaa	360
ccggggagcac	cgaagattag	tacgttaagc	attattcttt	tattttatag	atgtcctggt	420
acatgcgtcc	cagatcatca	tgtcaaggcc	gtgtcctacg	ataaagtcac	tgccgatctc	480
caagcctaca	aatcggtatg	gatatcgcat	ttgagtgcag	cgggtttggt	cagcatagcg	540

ctatgcgcac	ctctttggct	ccaagctcgt	agaaattctc	ctttacgcac	tcacgtata	600
acccgaatca	atcagatctt	ctacgatgac	cactgtctgc	cacgcatgtc	ggccgtcacg	660
ggcataatct	ccttgagcac	gaatgtctct	gcataccgca	ataactggag	tagcgggcga	720
aatccacttg	ataacctcat	cgagagcctg	catcagttcg	gctgcaaaca	taaacgagcc	780
gttctgatac	agacgaatag	gggattgtcc	tcatgcagat	cccgtttgat	ctcgcagcca	840
tcctcttaat	ggcttcatgt	atgcgagtcg	ccggaatgta	aactcaaact	ctttgtcttt	900
cagtttgatt	gttctcattt	gtcgcaatga	cttctttatt	gtgctgcaa	atatagccat	960
tttgcatagg	gcagctgcat	gaaacgactc	cgtattatat	ataaggaggc	gatcgtataa	1020
ggatgcgttg	ggataatctc	gcgaatccca	tgttctgata	gtttacgccc	cgaattttta	1080
tatttctacc	tcctaaaaac	gtggcgtggg	aaaatttttc	ttttggtcga	gaagtgaana	1140
aaacacgtgc	cggaacgaaa	aagttgcggt	tccacttttc	agaaaacacg	tgccacagtc	1200
ggagcgtttc	cggttcgtgt	ttttagttgg	caggttatga	gcatgtgcct	gcaagggtga	1260
tgtgcaatgt	cgaagtaggt	cggatcagat	aaaaacagct	gccacaagta	ctacacttca	1320
cttgtttaat	aagtcagaga	cgggttcttt	tctattgatc	cctaattggt	tatggcgact	1380
ttttctctgt	ggagagggtc	tcgggcggaa	tggaaataac	ctgaattttt	ccgaaaagag	1440
tcggttgcat	ggaaaagtct	gtacctttgg	agaattataa	acaaaaaatt	ttgcaccaca	1500
tggctaacga	taagacgcaa	ccgtgcagat	gctcaagcac	gatttggact	atttgggaatt	1560
gctctcggga	gtttcccgcg	agcgacggaa	gcagctacgg	agattatcaa	tctcgaacta	1620
tattgaatct	gcctaaagga	acagaaact	tcctggcggg	cattcaggcg	aatacgaagc	1680
ctttatccat	gtgctcaaga	atgcgtccgg	tagtatcgga	gaaaggtaga	cagggtcttc	1740
ggtgggtcagt	tgcgccaaaa	tcagagcgag	agctgtgcac	cctgatctat	tatcctcgcg	1800
agaaactcga	actgtgaagc	aaagtgatga	gcggatggag	gactgggtata	tggtcacgct	1860
gatcagctga	tcaaagtgtg	tcagaaagct	gcagagaaat	atactcgctc	cagggtacgta	1920
agacccttcc	tcccaagtac	agctatatca	ttcaggagct	ctccacgaag	atggtgtcaa	1980
tcccaataaa	tcggcttata	tcagcagcac	ttttcctcta	taatatccac	agggtgtgcc	2040
gatgacttta	tcattgcctt	agtgaacca	tccagcggct	ggtcacgcac	catctgcacg	2100
ttggtaggga	tgtctttcga	ccgtggnccc	ggagcacata	tcatca		2146

(2) INFORMATION FOR SEQ ID NO:261

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1129 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1129

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:261

ttttctcgaa	ccggaaagaa	atttttacgc	tcgtaaacga	aaattttttg	cacgtgtttt	60
cgaattttta	cgacccgcaa	tttgatgatt	tctggttctg	tttgtttggc	ggatcttcnc	120
cgttccgtcc	gaaaaggatg	ggtgcttgcc	tgaggcgaga	ggtcgcgtgt	agtatggcac	180
atacacgatc	gcttcaatgc	tgaagcaca	cagcacgaga	tctgccctac	gacagcctca	240
aaagaagaaa	cggggactaa	tgggaacgat	ccttctgtcg	cgccgaagaa	tgcaagcag	300
attcaggaaa	agatgaaagg	aggggctcgc	aagccatggg	atgtcttgct	tcggagggtg	360
tataaaagac	gagatattct	ccgtattcgg	gacggccgaa	agatcatcgg	tcgggtgtag	420
caatagatcg	gctacggcaa	aagaataggg	aatacatgga	tgtgatgggg	atcgtggcac	480
tcttcgcaga	agaatatctg	tgcttgagtc	gaagttccgc	accggacagg	tagaaggttt	540
ggctacgcag	gtcggttcgc	tatgagtggt	ctctttgtcc	gtaggggctt	ctcatgacaa	600

tgttttgcc	tgagacatgc	cataccctttg	ttgtgatatg	atgggggcata	ataccgatga	660
tcagcacgac	aagggaggcc	aagccttgaa	gaatatggag	agcttctttc	tcacaagcga	720
tgcggttttg	gaacaaaata	agagttcctt	cttatatcaa	gtgttttttt	gaccgatttc	780
cgtctaatacg	cgaacttgtc	tgaacgctgt	acccagattg	tcgataatat	ccgtgctatc	840
agactctcct	gactatagcg	tccggcatag	atgtctccgg	ccaaccgtgg	atataattgc	900
cgaggacaca	ggctgaagca	ggaagatagc	cgaccccaat	aggccggtaa	tgatgcccat	960
gaggacatcg	ccgcttcctc	tgtcgccatg	ccgggggttg	ccgtattgtt	gaatacgacc	1020
atgccgccgg	catacagggt	gcactgaatg	ctcctttcag	gactacatag	acatgatgtg	1080
acaggcgagg	aatcgggctt	ggcgcagccg	ttcatagtcc	gtattgcat		1129

(2) INFORMATION FOR SEQ ID NO:262

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1485 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1485

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:262

cattatcggtt	acttatccag	tcaataatca	tatatgtagt	gggaatatct	ttattttggc	60
agatcggtatg	gcctgaggaa	aaattttatt	cattaccttt	tttccaacca	cctgcatcgg	120
ccgtcattcg	aaagttgaat	tacatccttg	tcagaaatcg	ttgttatttg	attgaaattc	180
ttttgttaag	catttgaaat	tagtcgttgg	gactttgtcc	aatgaagtgt	tttgtattaa	240
ctctgccggc	tgctcaatct	taatcgctga	tatatatctt	tttccatant	ggaccattta	300
tgtcaacaga	agcacatagt	gagttctttt	gatataagta	gaatgcatca	ttctttcttg	360
tctgctgggt	ttattcttca	acattatgtc	atgatgatga	ttagtagagg	aacatccaac	420
tcaataaatt	ttagaacatt	cgattcatgc	aatccattat	gtttgtaaaa	ccttttagtg	480
gtattttgtg	attacatgcc	caatcgctat	tccagcttgc	ctaataagct	cgatagtcac	540
atgaaaggga	ggtgggtctaa	ttcatgggtca	aaacaaaata	cacaatcagc	ttaggaaagg	600
caactaagta	caaaaacttg	caattttcat	ctttttccca	tcattattca	agtaatttcg	660
ggaacttcct	ttatttcaga	aatcaaacat	aatctttgtt	cactttatga	acaaaagcat	720
tttcaatttt	cttgagttgt	gtgcatcagc	atcctntgca	agtttgctga	ggaagtctct	780
ttgatactac	aattttccat	atltgttaatt	tattgggtatg	attgtactat	gcaagggtatg	840
aaaatctatt	aaagtcaatc	ctctgaagcg	tgaagaactt	tgttttgtgc	acatctatcc	900
tctaacatgc	acttgatatat	aattgtatat	tgttggttat	gaatttctcg	tagttgtgga	960
aaaaaattat	tttttgagaa	aattcttggc	gatccgattc	tttttcgaga	cttttatatt	1020
agtatatatt	actatatctg	tttttgaaac	gaaaaagcac	atgcagattg	aagtctttta	1080
caaactggat	gatgggattt	gaggatatga	actttgagag	agttttatgc	tcatgatgaa	1140
aggtttggtt	ctaaatgttt	tacaccctct	tttttgaggg	agggtctatt	cgcaatctta	1200
aatttccgga	gtttgttttag	ttctcgacag	agtacacatt	caatattttt	attacctttg	1260
aagcttattt	agtctcaaaa	ggaataatcc	attataacta	tgagtacaaa	aaacacgaaa	1320
gaatggctct	tttagaggcg	tttaagttgt	tttcggaaaa	accttacgac	aagttactta	1380
tacaaacctc	caggagaata	ccggattaag	cagaggcgagc	ggttgcatca	tacaaaatca	1440
aagtctgctc	tttttgcaac	agtgtaaatg	gtttatactc	gcaag		1485

(2) INFORMATION FOR SEQ ID NO:263

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 482 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...482
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:263

ggacaaaatc atggagatta tcatgaggga acatgtgccc gtagtggtac gtcagccggt	60
agtccaaagg tgtggacagc caagttgaaa gctgccggag caaggtgata catgtagtga	120
gcagtgccac attcgctcgc aaatcagggc agccggtgta gacgccatcg tggccgaagg	180
gttcgaagcc ggcggaataa tggacgagag gagactacga ccctctgttt gatacctgaa	240
gtagtgatgc tgtgaacatt cctgtggttg ctgccggagg gattgcttcc ggcctgcagt	300
tgccgctgct ttggctttgg gtgccgatgc ccgtacaagt gggacccgtt ttgctctgag	360
tgaggaaaagt tcggcgcatg aagactttaa ggacattgcc cgccgggtcgg tggaaggagg	420
atacnatgct ttcgctcaag gttgtatcgn ctacgcgact gctgaagaac aaattctatc	480
ag	482

(2) INFORMATION FOR SEQ ID NO:264

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 497 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...497
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO:264

atccggaatc tatcgaacag gccatgaagg ccaaggagct gatcgacaga ctacacccac	60
gccggccccg aagacttcta cagagaaaaa accgaataaa tcgaaatcga tcttcatgcc	120
ggcgaactac tcgaaacgac ggcaggggtga agaattgggga tatattgcag taccaactgg	180
acaaattcca cgaagtatga aacaatacgc ctctgttaag ggacaaaaga ttgttttcat	240
tcattgcaaag gtgaaggcat attgcggcag gcaatagaaa aagaactgcg caccgctaca	300
aacaacatcg ttttcaggat gcctccttcc gagaatatgg ttgtgtgcta cgatggtgat	360

cattcattga aggatagtac cagttcctgc cgatggaaat agaaagaaaa ttcctgggtct	420
taaatgacga tttcaaagcc aggctacggc ggtacacaac attatacaag cttatctcgt	480
ggctgatgaa gatgcac	497

(2) INFORMATION FOR SEQ ID NO:265

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1086 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1086

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:265

aattttttatc aatcgaatta aaagtgtgtc cacttatttg tattaaattg gccttaactc	60
taaaaacaat gaactaggcc aatcttttta cctcatttcc cataaatgga ggcaaagaga	120
gcttcttccc ttcgggatgt tcattgcttt tgatagaata atatatgtgt tagagatttc	180
caagggtctat gccacaatgt aattcgatca ttttatagat tgctcataaa aaaatattaa	240
gtgtaggaag ctgaaactta cagtaggcat atcttttatt ttccttttca gtggattaca	300
tcgaaaagag aggggatgct tcatataacg agaggacaga tataagaagt ttgataaact	360
gttttcggca gtcaagtcct ctcaaaaggc aaacttcgag ataggagctt cggaagaacg	420
ctacaatgaa tcacctatct tctcttttg cccgaagagc cctcttcgga acgaaagaaa	480
acccttcggt taccactatg aattgagcga caccagggc tcttacaaca tctctgtgaa	540
attgatggag tctctacgga cctactctct acaacttgag aagatagcgt atctgtattc	600
gatacgggtg tgggaacggt agcctacttt ctccgcacga taagcacacc tctttcgaag	660
acatactccg catcaatgac tcgggcgcag catctaccct caatatatgg cgaaaggaga	720
cagattagcc gccaaaaattc ttttcttgcc gaccgtatct atggggagttt aggagtgcgt	780
gatttgacga cgacttccgt caattcgaag aggatattag tcatacgaat atcttctccc	840
ccccgaccat atccgtcagg tgttcgggtt accaaccaag atgatcgaac ggaagacgat	900
gggtgccaaa agttcgtgtt tcatcaagag acgaacggaa agacatcatc cgcattctccc	960
ccgttatgga tgataggatg tctttataac ctactaccat agcccctatt atgccaaaaa	1020
gttgagaaga aaccgaaaaa ctttaggaga aagagagaat acaacatcta cgaagaggac	1080
gctttg	1086

(2) INFORMATION FOR SEQ ID NO:266

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 483 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...483

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:266

```
gcacgtcggg cagcacctcc acgggagtat gcggattgag cgtgacgccg atttcatgcc      60
ggccttgcca atcgccgcca gtgagcgatg cagggtgcgac tggcttcata gtggacgttc      120
atcatataaa cgcccagttc ggccaactgt ccacgaactt catcggtccc acgatcatca      180
ggtgaacatc gagcgggttct tgcaaatcgg tcggatagcc tcgagaatgg gaaaaccgaa      240
cgaaaattgg ggacgaatac gccatccatg acgtcgatat gcagccagtc ggcccgtgc      300
gattgatcat ttcgacatcg tcggccagat gcangaagtc ggngacagca aagannggag      360
atacgatagg ttgcataagt atagtatcgg gttatttttt attgattcga tgctcgcaaa      420
gttatgcctt tcttgcgcca tccctgtaat tttcagacgg gctatcctat ggtttaccaa      480
aat
```

(2) INFORMATION FOR SEQ ID NO:267

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 2884 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
(A) NAME/KEY: misc_feature
(B) LOCATION 1...2884

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:267

```
gccttcttat ccgtctccgt tgccggcattg cgcgagtcgc cgccaatggg gcggagcgga      60
agactccctc tctcctaccc cttcttttcg agcattctat aaaggaaagg gggtcgacta      120
cagactattc acaagcaata aacttaagtg ttgtccacag gtaacagccg atacatacac      180
aataaaacaa caatcaccaa gcaatgaaac gaatcgtttt atcatctttc ctgttcgttc      240
tgtcctactt tctttgatgg cacagaacaa taccctcgat gtacacatat ccggacgatc      300
aaggatgcct cctccggcga accagtgcgc tatgccactg taacatccgg ctgacaggag      360
cagataccac acaggtgttc cgacaagtga ctacggcaac ggctacttcg tcataggcct      420
gccggcagct ccctcctatc actgacagct tcgttcgtag gtatgaaaac ccataccatg      480
cagattagtc gggaaatgga cagcacgaca tcaaatccat cgacatttct ctcgaatcca      540
ggacaaacaa ctctccaccg tcaccgtatc ggcagcacga ccactggtaa gatggagata      600
gaccgcctgt cctataatat gaaagatgac cccgcagcaa gacgaacaac ctgctcgaaa      660
tgctgcgcaa cgttcctttg gtaacgtgga tggtcagggc aatatccagg tgaaaggatc      720
ttccaacttc aaaatcacct caatggcagg ccttcgacca tggtagagcag caaccggaag      780
gaggctttcg ctccattcct gcccatacga tcaaacgggt ggaggtcatc accatccggg      840
tgtaaagtac gatgcggaag gcacaagtgc catcctggac atgtcacgga agaaggttaag      900
aagctggaag gatattcagg ttccatcacg gcagtgtcag caacaatccc acagccaacg      960
gtagtatctt tctgacggca agtccggcaa agtcgggctg actaccaact ataactacta      1020
cgggtggcaaa acaagggtct tcgctacttt accgaacgta ctacatccat gctccaaaga      1080
```

tagaagaagg	caaagggcaa	gaaacctttg	gcggacactt	cggcaatccc	tcctctcatt	1140
cgagatagat	tcgctcaatc	tctttacggg	gggcggaatg	tacgcctttg	ggagatgacc	1200
accgaccgga	acagcgtaga	aaaaactttg	ccggcagcaa	cctcatgtcc	tacatagaca	1260
gaaaactcaa	aacaagatgg	atgccggatc	atacagctc	aatgccgact	atcagcacag	1320
caccgcctgc	cgggcgaatt	gtcacccgtt	tcctaccgct	tcactcacia	tctaataata	1380
gcgagacctt	cattgaccaa	tgggaagcgc	atccgctcaa	ccagctaata	cgatccagta	1440
cgccggccag	cactccaaat	ccgatgcggg	atggacgaac	atacggcaca	agtggactat	1500
acacgtccct	taggacaaga	cattcttttg	aagcagggct	gaagtacatc	tatcgtcatg	1560
ccacgagcat	cctctctatg	agatacgacc	atccgaagat	gctccgtggc	agcccggctc	1620
ctatatgcac	agaatccgtc	gaacggaaa	ttccgccacg	atcaatcatc	ggagcagcct	1680
atgccggcta	caactatcgt	aaggatcagt	attcttgcaa	accggcctcc	gagtggaaa	1740
cagcaggctg	aaagcactct	ttccgaaaac	gcagcagcag	atttctccca	caactcgttc	1800
gactgggtgc	cacgctcacg	ctcggtata	ccccctcgcc	catgaagcag	cttaagctgg	1860
ccataacttc	cgaatccaac	gtcctgcaat	cggccaactg	aatccctacc	gctacagacc	1920
aacgattatc	aagtacagta	tggtaatccc	gacctaaagt	ggagaagcgt	caccacgtcg	1980
gtctctccta	taatcaatac	ggagccaagt	catgcttaca	gcatacgctc	actacgactt	2040
ctgcaacaac	gccatccaaa	ttacaccttc	tccgacccgg	ccaatcccaa	tctgtttccac	2100
cagaccttgg	caatatcgga	cgagagcatt	ctttcagctt	gaatacctat	gccatgacac	2160
gccggccgta	tgggtcagga	ttatgctcaa	cggaaatata	gatcgacatt	ccaaaagagc	2220
gaagcactcg	gcattgatgt	caattcatgg	tccgcatggg	atactcaggc	ctgatgttca	2280
ccctgccgaa	ggattggact	gtgatctctt	cggagggttat	tatcatgggg	gaagaagcta	2340
ccagacgaag	tagatggcaa	tgtattcaac	aatatcggta	tagccaaaca	gcttttcgac	2400
aaaaattgag	agtctcgctg	agcgcaaaaa	acattcatgc	gaagtattcg	catggaagag	2460
ccggaccatc	ggcaatggat	ttactatttta	ttcggaaaa	ccggtataca	acggagtgtt	2520
tccttcagcc	tcacctacag	cttcggtaga	tgaatacaca	agtgcgcaag	gtagagcgta	2580
cgatcgtaaa	cgacgactca	agcaaacctc	atcccaagga	cagcaggggtg	gcggacaagg	2640
aaatccaccg	gcaattgatc	aagaaacact	gtaaaaaaac	accatacaat	gagaaaaaga	2700
ttttcgccgg	ccttgctggg	ctcataggca	cagcactgat	agccgtgcat	gcaatatcaa	2760
attcgacaac	aaaggcaaaa	caatcacccc	caaggcgatg	ccatcacgga	gactcgcaac	2820
atcggtacat	tcgacaagat	cgtgtcgagg	atgcattcaa	catccactac	aaagccggta	2880
ttcc						2884

(2) INFORMATION FOR SEQ ID NO:268

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 562 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...562

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:268

ggacaagggtg	gtggagaatc	tgagcatctt	cgttgctgca	gctcgttttg	cggcgaggcc	60
ttggatcata	cgctgctgca	tggccctccg	gggctgggaa	gaccacgttg	tcgaatatca	120
tagccaatga	gcttggcgtg	gggcttagat	cacttccggg	cccgtcctcg	acaagccggg	180
tgatattggcc	ggactctcac	ttcgttggaa	tccaacgatg	tacttttcat	agacgaaata	240
caccgctgag	ccctgtagtg	gaagaatata	tctactcggc	catggaggac	tacctataga	300
tataatgctg	gacaagggac	ccagcgcgcg	ctccattcag	atcatctctc	ccccttcacc	360

cttgtgggag	ctactacgcg	cagcggtttg	ctacggcacc	ccttcgcgcc	cgtttcggga	420
tcaatcttca	tctggagtat	tcgatgtgca	tactattacc	ggtatcgtgg	agcggagtgc	480
acgcattctg	aggtgtcctg	ttcgcacgat	gctgccgtag	agatagcggg	acgaagccgg	540
gtacgcctcg	tatagccaat	gc				562

(2) INFORMATION FOR SEQ ID NO:269

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 1404 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...1404

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:269

agggtatatg	tataaatagg	catgtgctta	ntgctctcct	ttcgggtatt	tgatgccacg	60
attgaatcct	tcggccagag	agatcagcgt	ttctgtagga	cgataccggg	gatttcttgg	120
atggtcgaat	tcaagatgtc	catcaggggt	cattgtcgat	ggcgaagagc	ttgatcagca	180
aagagtaggg	tcctgtgtat	agtgcacatc	cacgatctcg	ggaatgttgt	acagatgggg	240
gagtaatcct	tgtacatcga	ggctttctcc	agacgaacgc	ctacgtaagt	acatttctga	300
aacccaaaga	cctcgggttg	atacgatagc	ccgaacctgt	aatactccca	tttcgatcat	360
tctttgtacg	cgttggtgaa	cggcagcacg	cgtacgccgc	attcttctgc	aacatctttg	420
aacggcatac	gggcattatt	gagataatgc	tcaggattcg	cctgtcgagt	ttgtctaacc	480
tttccatata	tataatggct	aaaaactgaa	acaaatgtat	gaaaaaactt	atgtcggggt	540
atthttcgatt	accttgagac	tttatactat	aaagccccaa	gggttttagt	ataaacgcag	600
gagactttat	agtataaagc	cataggggtt	ttaagtaaaa	gtatggaggg	tttatagtat	660
aaagtcctgt	gacttttaag	tataatccaa	ggaacatcgt	gttctgctta	taaacgatag	720
gttcgaatta	ttgcaaacaa	gcatgcaact	caatgggata	aagggaaatg	ccatatatth	780
gcaggcttaa	aatccagcaa	attataatcg	gttttttata	tggaaacaac	ccactctctc	840
cgctccgaaa	aagcatcgta	ggcgtacagt	tcctctttgt	tgthttcgag	ctactgttht	900
agtgccccct	cctgtgggtt	tagacccttc	gcagccctgt	ttacggccgg	catcgggtaca	960
ttgattthtt	atthggtgac	aaaggaaagg	tgccatttht	tcttggtagt	agthttgcct	1020
ttatcgctct	attatcaagg	ctacggagat	gtatgggctg	cccggtgctc	tttcgggttg	1080
gtcgggtgtg	cattgggtta	ttatctgatg	agtgttttgg	tcaagtgcag	ggagtacgtg	1140
tgatccaacg	tttgthcccg	cctgtagtca	tcggcctgtc	attatcctga	tcggacttht	1200
gcttgccgga	gccggagtgg	atatgcacaa	tccaactgga	tactggctac	tatatcgctt	1260
gctaccgccg	tgctgtaact	atgctggcca	aggggcttht	caagctgatt	cccattctct	1320
gcgtatagtg	gtaggctatg	tgatagcccc	tggthtctat	gangggcgatc	tgatcctgtc	1380
gtgaaggctt	gcgtggttga	gcct				1404

(2) INFORMATION FOR SEQ ID NO:270

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 749 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...749

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:270

gctcgaaatgt	tcttgaatac	ttgttcggtc	tgctctgtta	ctccgccggt	acaaagttcc	60
ctgtggtagg	atcaaggcct	aattgtccgg	aagcataggc	atattaccca	tcaggatagc	120
ctggctgtat	ggtcggattg	cggccgggca	ttcttcgtgt	tgattacctt	tttcattacg	180
tactgttttt	tatttgatta	ttaatattgat	gattgcagtc	tttgctgtcg	cactacttcg	240
taaatacaat	gccggccgca	acggagacgt	tcaatgagcc	tatagccccc	atctcgggaat	300
agctactatg	ccatcggcca	tcctaagcgt	atcaggtgat	ggccgacatc	ctccgcccc	360
atgactatac	ccaaaggcag	cttcatgggt	actcgggtata	tagatctgca	gccttctccg	420
aagcagcgac	tatgcgtata	cgtattcttg	caggctgcgg	atggctccgg	gaatggaagt	480
cacgcgacaa	ccggaatacg	atgcaaagct	ccggcagagg	tcttgatagc	atctcctcca	540
ccgaaacgct	tcctctttcg	ggaatgatga	tggcatctac	ccctgcacct	ccgccgtacg	600
agcaatagcc	ccgaagttcc	gcacatcggt	gataccacga	gtagcangag	gaagggtgcc	660
ttaccctcct	catagagcat	cggcatagtt	gatccaaacg	ggtatatattcg	atagccgaaa	720
gaatggccac	cacccttggg	gattcttgg				749

(2) INFORMATION FOR SEQ ID NO:271

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 544 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...544

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:271

gagtatataaa	atttctcgag	agagccattt	ttctagattc	caatataatc	cttatatcta	60
ttataactaga	ttgggtagta	cgatgaacca	attggatccc	aaaaaagaat	gaggcaaaca	120
gaagattttcc	tccgtatcga	aaagtctgga	aggaatgggt	caacctagat	tctccagagc	180
ctaatagcta	tgatatctca	tgctaagaac	agggaccaat	atgctccatc	gtaacctgct	240
gaacttgtaa	gaaactcaaa	cttctcgata	tctaccaagc	tcaagctgta	tgctagtaca	300
gaaaaaaggg	tgtattttcc	tggttttata	acggatatag	aaggatccct	atgtaggggtg	360
cacttctgtg	agagtctttt	ggaatacaat	agaccgttct	tatatcttat	tttctttgtt	420
ctccattgtg	gaagagatct	gaagaagatt	aagaaaatag	gcaattaaga	atgtaaacct	480

tatngagagt gtctatgcag cagatattat taggggggag tggangtata tccctttact
cagc

540
544

(2) INFORMATION FOR SEQ ID NO:272

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1686 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1686

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:272

cgttcttgct	gacaaggatc	cgcaagccgg	aagtgggtggc	cggtgggatcg	atcgaagagc	60
agcttttcggg	tctgactttc	agcccttata	tccgcagtaa	atgccttata	tgaggcagta	120
cggtactatt	agccgaacag	ctcacgatct	tcacgaataa	aaaaagcctt	tttttagtcc	180
cgtacccttt	cccgatatga	tggaaaacaa	tcccactctc	tatcttattc	cggtaccgct	240
gggcgaaccg	agcacagccg	cgtactgccc	gaatacaaca	ggacgatcgt	ccgcgcctgc	300
accatttcat	tgtagagaat	atccgttcgg	cccgtcgttt	cctaaaacgg	cagaccgatc	360
tatcgatata	gattcgctca	ccttctacga	accaacaagc	atacatcggc	agaggagggtc	420
agtacctata	tccaccctat	gctgcagggtg	agagcatggg	ggttatctcc	gaagccgggt	480
gtcctgcaat	cgagatccgg	gcgcgggatc	ggtagccatc	gcacagcgca	agggattgag	540
gtggagccac	tcgtggggcc	gagttcgatc	ctgatgggac	tgatggctcc	ggcttcaatg	600
gtcagagctt	cgctttcaaa	ggctacctgc	ccatcgggaa	aatgagcggt	tggctgcttt	660
caaagaaatg	gagacgcgga	tttatagtgt	cacgagacgc	agatcttcat	cgaaacacct	720
tatcgaaacg	acaaatgggtg	gacgaactca	ttcgccactg	ccggccgacg	accaaactat	780
gcatgcctcc	catatctcct	gtcccgcacga	actgattcgt	actcgtaccc	tctggaatgg	840
aagaaagggg	agcctgcact	acataaaaatt	ccaactatct	tctactctat	aaataataga	900
tgacaccact	acctcaagat	tttgtctccg	catgcgcccc	ctgttaggga	gcgaagccga	960
agcttttttt	gcagctctcg	cagccctgca	cctgtaagca	tacgtcgcaa	tcctaataaa	1020
ccgggcatcg	taccactgta	atggatctgc	ccaccaataa	gtctgtgccc	tgggtgcctt	1080
cggtacatat	ctggctgaga	ggccttcctt	caccaatgat	ccggtttcca	tgccggaggc	1140
tactatgtac	aggaagcctc	ttccatgttt	ttgtggagtt	gaaacctctg	ctcggcgaat	1200
cacctgtccg	ggctttggat	ctctggcttc	cccgggcgga	aagagcacac	tcctaaccac	1260
catattgccc	gaagcagtgt	attggtcagc	aatgaagtga	tccaccatcg	cgccaatata	1320
ctgctgagaa	acatgatcaa	gtggggctat	ccgaccggta	ttgtcaccga	agagatcccg	1380
ataggttgaa	atccgcagga	gagactttcg	acttcattct	gtcgatgctc	cttgctcggg	1440
agaaggcatg	ttccgtaaag	atgaggctac	cgatccgaat	ggagcctgca	aaaatgtgga	1500
gctttgtgct	cgcaggcaga	gcgtatcctc	tctgccgcac	gggaaatggt	acagccggga	1560
ggtctcttgc	atacagcacc	tgtaccttca	atacgcttga	gaacgaagac	aatctggctt	1620
cctcatcgat	actttcggag	cgagccctgt	ggcttgggat	ggtctccccg	tggcaagatc	1680
ggcctc						1686

(2) INFORMATION FOR SEQ ID NO:273

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1869 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1869

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:273

gtagggtagc	acttgatcaa	aaagaagtag	aacttccgct	acgactatct	cctctgcccc	60
atgccccatt	cgtagggaaa	gccgatcctg	ctatcatatc	ttgttcccc	atgacttgac	120
cggagaaccc	cgccggacag	ctaccgtggg	gctttcgaag	taaagccccg	tccttgaaag	180
acaatatata	cgttactaaa	cagaaaaaca	tgaagagggt	acgaatcgaa	gccggatgga	240
aaaagtttta	caggaagaat	tcgataaatt	ttatttcgaa	aagctgaccg	acttgtgcgt	300
gaagagtatc	ggcagagtcc	gatttacccc	ccggccccgat	ttattttcgg	gcatttgaca	360
cttgcccttt	cgaccgcgtc	aaagtcgtta	ttttggacaa	gatccctatc	atgaaccggg	420
gcaagccgaa	gggttggtt	ttcagtgccg	accggtatac	ccattcctcc	cagtttacgc	480
aatatctgcg	agagattcgt	accgataccg	gacagccggc	tcatatagat	ggaggaagtt	540
tttgccgtgg	gtagagcaag	gagtattact	gctcaatgcc	acgcttacgt	tcgtgcaagt	600
caggccggta	gccaccaagg	gcatggatgg	gagaccttac	ggatgcggcc	atagaagcct	660
tggccaagcg	tagagaacac	cttgctttct	cctctgggga	agttatgccc	gccgaaaatc	720
agccatgatc	gatcccgctg	tcattctcatt	ctcgaagcac	ttcatccttt	cgccactctc	780
agcaatcgcg	gttttttttg	ctgcaagcat	ttcagccgaa	ccaacgcata	tctcgccagc	840
acggcatagc	cccgatcgtt	tggttagcacc	ttgattagaa	actgattggc	cggctttggt	900
cccttccgag	aactacatgt	aggtggagta	ccctcgatcg	aagaggcaca	ccataaacia	960
cccctgttcg	gcgtaagaaa	cgccaatgta	ttcgttcccc	gattagcggg	ttacacacta	1020
agatcttgga	gttatagggt	attccgttca	ggcaattgta	tagggggcaa	tcctgctttg	1080
ccgggatcga	accaacattg	aaattcggat	tgcttttttg	accgaatttg	cagtcctgtac	1140
aggaagatgg	gctataccac	aaggcagatg	gcggtaaccg	tagaggataa	cgggctatcc	1200
cgtagagctc	ttcgagctac	gctgtgagct	cggcgaggta	cgctctacag	cgtagcgagc	1260
cgagccgtag	agttcgctcc	gggagccgta	gaggtggccg	agctgagccg	tagagcgagc	1320
ctcgtacgct	ctacggcgta	gcccagatcg	ctgtagggag	tagctcgacc	cctttcggcg	1380
tatgttccga	atggctataa	aacaatgcgg	attcgatctg	agaaaatatg	caatatcctg	1440
tttgtcagcg	tatttcattt	ctcgggttag	gatttcagct	tcgagaggct	tcgacatcca	1500
atgagacgct	aaactttttc	ctttcatttt	ctgattcggg	tatagtcaat	gccccaaacia	1560
gagcttgacg	ataaggcggg	tctcatgaga	atcgacacca	tatcgcttac	atcgacccac	1620
gttaaaaaag	aaaacctgct	tggagaagga	ttccaaacag	gtgatagaaa	ggtgtaccga	1680
tatgcatccg	aataaccgga	gatgaggttt	gtgcctcttt	gtcaataaca	aaacggcgca	1740
agagagtcag	aatatctgca	tcagtcggac	aaagaggaaa	taatatgcat	gggtgctcgt	1800
acaccgtcat	cagtaagata	tgtctgggtc	gggtatacca	gacagatgcc	agaccggcat	1860
tgccgccccg						1869

(2) INFORMATION FOR SEQ ID NO:274

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 450 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...450

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:274

tggtgcgtta	gaaaatggaa	agtgcagata	tggacggcctt	gactagggga	tagctttttg	60
tctatgtagt	ataagataat	tcctctgtat	tctgcgaatt	atgacccttg	tcttttgcct	120
cgtatccttg	tttcagcctt	ttcaataccc	ttggctatag	tcttcttttt	tgatgatttc	180
tagcaaacct	tctagacaag	tttccgattc	tccttgagag	aaaggcaatt	caaattaagc	240
gtgattttat	atcatcattc	caagacttat	ttgcactaga	tattgttccg	tcattcttga	300
gctgatgcta	agaaacagt	cgctcggtaaa	gagattaagt	gtatctcctc	atccttcttg	360
gagcaatcgc	aatgagcgga	gccctgactc	tgccactgca	acatgcaacc	atattgctat	420
aggatagttg	ctgggcaggg	ttttggctac				450

(2) INFORMATION FOR SEQ ID NO:275

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1336 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1336

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:275

ggccatgccc	cactgccacg	cggtgcatcg	ggacttcacg	ttgtactatc	cggcgatctc	60
ttctatatta	tctattcggg	tgtggacgat	aaagaccttc	cggtgcggga	catctcgaaa	120
ttgacagctt	cccgaacaat	gtcgggggtga	atcgtgccag	ttcggtgcca	acgggatagc	180
gattcggcgg	tgggggttga	tattcgagag	gtcgcgtgct	cccatcagag	agaattgcaa	240
agtacgggga	taggtgtagc	agacatggtc	agcgtatcga	cattgacctg	tagttgcgca	300
gcttttcttt	tactgccaca	ccgaatttct	gttcttcatc	gatacaagga	ggccgagggtc	360
atggaatctg	atatcgttgc	tcacgagcct	gtcgtaccta	taattatata	gatccgacct	420
tctgccagat	cgtgcagaat	cctttaatat	ccttggccga	acgggcgcgg	gatattgtatt	480
cgatacgcac	gggaaatttt	gcaatctgtc	cctgaacgtc	tgatagtgtc	gataggccat	540
acggtagtcg	gcaccagtat	cgctacctgt	ttgccgtctg	tggcggcctg	aatgcggcac	600
gaacagccac	ttccgtcttg	ccgaaaccga	catcgcccag	ataagccgat	ccatcggacg	660
atcgcttttc	atatcggtct	ttaccttgcc	gtggcacgct	cctgatcggg	cgtatcttcg	720
tacaggaaaag	aggtcccaat	tcgtgctgta	ggtagctgtc	cggactgaat	gcaaagcctc	780
gctctctttc	atgtgggcat	agagccggat	cagatcgcca	gcaatatact	tgaacgcttt	840
ttggctcctc	ctttgagctt	ttgccaggct	cccgtcccga	gagactcagt	tctacctgcg	900

catcactgtc accacctttg tatttggaca attatggagg ctgtgcagat tgacgaatat	960
tatatcggtta tttcggtaaa gagtttgatt acttcctgcc gcttccctcc cacatcggtc	1020
gtgataaggc tccgaaccgg ccgataccgt gatcgatatg cacgatatag tcgccttgga	1080
gaattgggtt agtccttca gtgagagggt cactttcccc gaacggggtt gtcgcttttg	1140
agattgtatt tgtggtaacg atcgaaaagc tgggtgaccgt aagcagaccg atccgaagag	1200
cttcgtccga aaaaccctca tgtaagttag cgatactctt ttcggaagga gcgaagagct	1260
tccacgctcg gaaagatctc ttccactctc tcgtattgct tatccgaggc tgtggccaaa	1320
agcttctgta gccggc	1336

(2) INFORMATION FOR SEQ ID NO:276

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 551 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...551

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:276

cggtttttcc agtccgtagc tcgcaaaacg aaatccaaat tctccgcaaa gtacgtccgt	60
tcagcaactg gaaatcctga aacacaatgc ccaaattctg cgcagatagg gcaactgctt	120
ccgtttcaac tttgccagat cataatcatc acgcgggcat aaccggcgaga gataggcacc	180
tcagcataca aagcctcagc aaagtgtctt tccccgatcc cactgagcct atcagataga	240
cgaagctccg gcggaaaggg tcagattcaa attttgaaaa atgacgtttt cctctgacag	300
agcgtcacat ctctcatctc cactacaaga gctttatcgg ccaacttaca atatccattc	360
gtttttttcag aggctatttc cgaacaaagt taaaataaac cgtggaggat agtcctaccg	420
agtggctcag atcgggtttac atttcccaa tcataaaatc cttctttgat cagaagtctt	480
tgaagacatt tttggccatg agacattaca tattgggcaa aaaaaaagaa ttgggtctacg	540
gcaggaccac c	551

(2) INFORMATION FOR SEQ ID NO:277

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 767 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...767

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:277

ccgtgcaaag	cttgagcct	cgggtgatac	cggttcgctg	gtagacagcg	gcaaacgact	60
tcctctatac	atctgaaacg	aaagtccagc	agctgccacc	aaccgatacg	ggtgccggtg	120
catctactcc	ggaaataaac	tgcgtttatc	ggcaggcaat	ccggtcgtct	ccgtatcgat	180
aacgagaaaa	caaggcggct	atccacagcg	gcaggcacag	gcaccaacaa	agacgaggca	240
tcggctcgat	aatccccctg	cgacggaatt	gatccgaaga	gccttctggc	ggcagttgtc	300
ggcctgccat	ggatctttcg	gtttccataa	cgtcataaaa	gcctgcctgc	aatcagcaca	360
agcagggcca	cagccatcca	cagcgtcatc	gataatcttt	tttctcttat	cgaagagaaa	420
ctttcggctg	cgtgcatgg	ctccttgacc	gatccggctg	gcacaaattg	ccaatcgag	480
acagaaggca	ttctacccta	cccgtgcggc	gcacatagcg	aatcagagct	tgccgaatac	540
cacggctgta	gagttcttga	gacgagaatg	caattcttcg	ggtgcaatcc	ggcttccttc	600
cgtcatcagt	ccgccccac	cattggctcg	ataagaatga	gggccaccgt	gtatacacta	660
tcaagtacaa	agggcttgta	tacccttggc	cggacatctt	ggcccttaac	tcccgtgatg	720
agcacccttc	tcccttcggg	ttggtcacgt	ctacggtata	gcgcagt		767

(2) INFORMATION FOR SEQ ID NO:278

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 432 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...432

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:278

gggaaatgaa	tcgcttgggg	gttatggtgg	atatatcgca	tgcggctggt	ccactgttcg	60
tgatgtcttg	caaatacagta	gtgcccctgt	tgtagccatc	attcatcgtc	ccgcgctctg	120
tgtaatcata	cacgaaatct	gaccgacaag	acgcccttgc	catagcccgt	agtgggggag	180
tggtgcagg	ttgtcttatg	ccggatttat	ttccgagcag	gaggaagagg	gctccgtaca	240
gcatgggcag	accatatcga	ccactttgtc	aggttggttg	gcatcgaaca	tgtagtgctg	300
gttccgattt	tgatggagat	ggcgaactgg	taggttgccg	agggccaatg	acctgatcaa	360
tttgactgtg	gagcttctac	gtcgtggcta	tatcgggatc	agctcggaat	tgctttgggg	420
cgagaatttc	ct					432

(2) INFORMATION FOR SEQ ID NO:279

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 809 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...809

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:279

aaaggatgta	atattgtgag	cccgcaaaaa	gaggggaatc	catcagactt	aatatcccgc	60
ctctctttct	ttgcggaaaa	gggttcaaac	ctgatttcta	aagcattaca	taatgataac	120
tcctcaacta	atcgaaccgt	gtactatgcg	gtgatcgggtg	cgtcgcaaga	tgtgacaaaa	180
cccgggtggaa	aagtatacaa	aacattctga	acggctcgtt	tcagggtcgt	gtattgggtg	240
taaatcgaaa	gtgtctaacg	tacagggagt	ggaatgtgtg	cccgatgtga	aagactaccc	300
caagtagatt	tggctatttt	ggctattcct	gcacgtttct	gccacctacg	atcgagggtgt	360
tggtgaaaga	aaaagggacc	aaaggaatca	tctattctct	gcagggttct	ccgaaatggg	420
tgcagaaggc	aaggctctcg	acggcaaatg	gccgaactgg	ccaatgaagc	cggagctacc	480
ctgatcggcc	caactgcgtc	ggcgtaatga	atccgctgca	ccaatcggtg	tttaccactc	540
ggtgccggta	cttacgccta	agggatgcga	ctttatctcc	ggttcggggc	aactgctgta	600
tttatcatgg	agtcggctct	gagcaagggg	ctttcttcta	tcggtatatt	cggtcggcaa	660
cgctgctcaa	acgggggtgtg	gaagattgct	cgaacatttg	gacgagacat	tcgatgctgc	720
cacttcttct	catacctgct	cctatatata	gagactatct	tcaaaccgaa	acgcttctga	780
aacagccaga	tcattggtac	agaaaggct				809

(2) INFORMATION FOR SEQ ID NO:280

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 636 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...636

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:280

gcggcttggt	cagtagcttc	ttcagccttc	attgcagcag	aatcgatctc	atagcagccg	60
tatcaactac	aggagctgca	tcttctacca	aagtggcaaa	tccatagccg	tagagtcagc	120
agcttcttca	gtcttagcct	gagagttcaa	gaagcgaatg	atacagctgc	gattacagct	180
gcaaaagcaa	caaattcttc	atttcctttt	ggggttaaaa	gtgtaattaa	tgttctataa	240
cggcgaaata	tacagtttct	tttggtacca	ccaaaaaaaa	cgaccaaata	ctgttgcatc	300
gagccctttt	atccggaagc	cttacgcatg	gctatttcct	ttaagacggg	ggcaccgat	360
cttgcgcaat	caagtataga	ggaaacgttt	gagctgtgtt	tgggtgtctt	ctcgaactct	420
tcgtcatggc	ggacaaaggc	cttattttct	cgtatgcacc	ca'cttgccc	ttcagttcgg	480

ctcggctcct	tcgatataag	cccatgcctg	atccggagag	atccctttat	gctctatcgc	540
tgtctgtccg	gcacgattag	tgcgatcaag	cgcccgcttc	gctctgtgcg	atactttcga	600
ggacatagga	taattgttga	tcttcgatcc	tattcc			636

(2) INFORMATION FOR SEQ ID NO:281

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1063 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1063

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:281

gcagaaagg	tggcttatcg	gtgggcagca	aaacgtatca	ccttctgtca	ctcggagagc	60
aattcattcg	agatcaagat	gacgctcgaa	ccgattcaga	actgcgcac	aacctcacag	120
ccaacagaac	cgatacccg	caaacgcgac	ccaatacgtc	tatgccggca	tgccacgtac	180
ttatggagga	aattttctgat	gacgaccatc	ggactgaaag	gcatgttcag	cagttcgtcc	240
ggagcacggg	ctatgcctcg	caagccttca	atcagttcct	ccacaatcgg	gagaaatcgc	300
agggcgtatt	atgggtcaat	atcatggagc	cacttatccc	tctccggatt	catggaagga	360
agcagtctgg	gccggccagc	cggtttctct	ggaaccagtg	ccgtttctct	caactcagcc	420
gacgtgctta	ttccggcttt	ctcagtgctt	atactcagag	gtcagtgggg	aaaatcggcc	480
tgtccggcat	ccccctcatg	ccttccattc	ttcccaactg	gaatgtcaga	aacacagccc	540
aagcaaaaca	gaaaaaccca	acaaataaag	aaagaatgcc	cgaatcaaca	agcaaacagc	600
cttaccgcgg	tatatacaac	gtagatagct	atagctctac	ctcggttggg	tgggcttgac	660
cgatggtagc	aacctgggct	ttatccagac	ccgtccgacc	ccagtagcgt	gactcccgtt	720
gcatccatgc	cattcacatt	ccgtttgttc	gtctcgaaga	cagttttgct	ccccgtctcg	780
gtgtgaagtt	acgttttatga	gtggattggg	aatcaatacg	gactacagaa	agatcgccgt	840
ctgaatctga	atctatcggc	ttatcagctc	gtggagtcga	ataagatcag	ataaccgtag	900
ggatgagcta	taaggcagag	aattttgcc	actcatcggc	ctgcaacgga	caagaccac	960
gaggaaggca	aaaggagggc	aaagaacaac	gaagaccatg	gcttcgcgta	ccggtggggc	1020
actgactctc	gagtggaacta	tgcttacaag	ccgacactga	cgc		1063

(2) INFORMATION FOR SEQ ID NO:282

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 816 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...816

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:282

ggcgagtcag	tacttcgcga	ataacgacca	agcctatccc	ctgaccattg	gcttggtgct	60
gaagaatggt	gtaaagagac	gggtggcaac	gtcatcgca	taggctgtcc	attatcctct	120
acgagcagat	tgtgacgac	caaacaggca	gaaccgtctt	tggtgccgag	acagccagat	180
cattttgctg	tgcaaactct	ctatagcggt	gcgcagcaga	ttgatcacca	cctgctctat	240
ttgcttgcac	cgacgcggac	taagcacgaa	tcttgctctt	tgacacatctt	catttcacac	300
ccgtttcgac	agccaaaggc	tgcatcagca	gtatgcacgc	ctccatagcg	gtaccaagtc	360
tacggaagat	agggttaggat	caggtagctt	gacacttcgg	caaatcgtgt	gataaagcga	420
cttcaatggc	catacaccgg	tgccggcagag	agcgatggct	tcggacactt	ccccttcggg	480
agtatgagga	tgtcgtcgaa	agcatcccc	acggcattta	gcacaccgat	tataccggcg	540
tactgttatt	gacctcatgg	gctatcagcc	tgatcagttt	ttcatagggt	ctttctccgc	600
cgaatgcaac	tcctcggtca	gggtttcgat	actgaaaaga	gacggctgaa	cgaacgatcg	660
aagaatctca	tccgcgtaat	cctcctacct	cggccgtagg	caatcgccat	gtacgggatt	720
ccccttcgcc	cagctgtccg	gaccgaaagg	gatcttcgcg	catacttctt	ccaacggtct	780
ttcgtcggga	tataatcatc	gggtaagtcc	aacagc			816

(2) INFORMATION FOR SEQ ID NO:283

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 1237 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1237

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:283

cagcggggat	gctgatgggc	aacttaccaa	ttcttgacat	aattccgtac	tcctttatca	60
ataaacgtaa	cacaatactt	ctcccccaac	tttcaactac	gagcttcttt	atcagtcac	120
actcctcgtg	gggtagaaac	aatagcatat	caaggccgtt	caatacgccg	ggcatatcac	180
gataaccac	atacttcgaa	ggccgggacg	agacacacgt	ttcaactttc	tgatggcat	240
ttacttatgt	gccaaatcat	actttaaggc	aacttttatt	atgccttgag	agtcttctcc	300
tcgaacttat	agttcaggat	ataccctttg	tcgaaaagga	tcttgatgac	tctttcttaa	360
tatttgacgc	cggcacactt	accacacgat	ggcagccata	attgcattac	gcaaccgcgt	420
caaataatct	gcaataggat	cgctattttg	aattacaatt	aaattgatcc	ggaaagccgg	480
acaatatatta	aactcttacc	aactcgcttt	ttttacgccg	gggataagac	cggcagaagc	540
atttcacgaa	attgaatacg	ggaaatacca	aattggcgca	tatagccctt	ggacgccag	600
tcacgagca	acgattatgc	aaacgaacag	gagaagcttc	ttaggagca	actgcaaggc	660
ttcataattt	ccttcagcct	tgagtgcgct	ctctttgcag	catatttcgc	cacaagcttg	720
gcacgcttca	cctcggggct	ttcattgatt	ctttagccat	atcaattttg	tttttagcgc	780
ttctgaacgg	taaaccgaat	tctttcagaa	gggcataacc	ttcttcacgc	gatgcgccga	840

agtcacaaaag gtaatatcca ttccgagaat cttcgtaatc gctcgatatt tatctcgggg	900
aaaatgattt gttcattgat tcccaacgta tggtacctct tccatcaagc ttgctttcga	960
tacccttaaa gtcgcggatt gaggcaaacg gatgcgcacc agacgttcca agaactcata	1020
catttgctcc gacgcagagt aaccataaca ccgattggca tcttctttct caacttaagt	1080
ttgagatgtc tttcttaaga taccgcgtcg tacagctttt ctgtccgtaa tagcccgta	1140
attcgcttac tgcaacatcg ataatcttct gtcaccgtag ccataccaag accttggttg	1200
atcacgattt tcttcaacac aggactgcat cacgctt	1237

(2) INFORMATION FOR SEQ ID NO:284

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1343 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1343

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:284

gcggacattt ttacgcgggt tttcaaagcc aaaaagacaa taactccaaa taataaagaa	60
gaaaatgaac gtatcgatca agaatacgga tgccgctcatg ccattgctac ggtagcaatc	120
gagaaggctg attatgccaa cgaagtgaag aagctctgcg tacctatcgc caacgtgcc	180
atgtccccgg attccgaagg ggatgggtacc gatgggtatg atcaagaaaa tgtacggtaa	240
gggtgcaaa cagaggagat caaccgcgta gtcggctcgtg aactctatcg ttattagcag	300
agaacaaaact caatgtactg ggagagccta tgcctaacga ggattgcaga aggagtacga	360
cttcgatacc actgacgact ttgaattcgt atcgacctgg ctctcagccc cgtgggtggac	420
gtagtggtag acaagagcat tgtgtacctt attatacgat ccaaccaca gaggatga	480
tcgaccggca atcgaatcta tgagatccag ctacggacat tcggtggaag ccgatgaagg	540
actgccaacg atgtagtgaa ggggcgtctt tgcgaattgg aggatggcaa cccaaagaag	600
gtgggtatctg tgtggaagaa gccatgttgc ttccggctat atgaaggacg aagaggagaa	660
gaataaattc gtcggcgtcg ccaagacagc gttgtcgtat tcaatccctc gaaggcatac	720
aataataatg agtacaactt tcctccctcc tgaaagtgga caagtcgggt atcggagagc	780
atacggtgac ttttctttcg aaatcagcag tatctcccga catgaaaagg ctgactgaat	840
gaagagttct tcaaacaggc tttcggcgag gagacggata tcaaaacgaa gcggaactgc	900
gtgttaagggt aaccgaagggt gttcgcgagc attcacggcc gaaagcgact acaaatttct	960
catcgatctg cgccgcgaat ggaagctcag gtaggagagt tgcagttccc cgatgccctg	1020
ctgaagcgcg gctgaaactg tcgcacacgg agtggagtga tgaagaactg gaaaagcata	1080
ccctgccatg atcaaggatc tgactttcca tgtgatcaag gaagatcggg gaagaagaac	1140
gacatcgtgg ttacgccgca agaggtcagg aatttcccat cattgtagcc aagaatcagt	1200
ttgctcagta tggcatgtcc gccgtcctca ngatgctctc gaacgctatg ccaatacgat	1260
gatggagaag gaagtgtctg tcgcaatttc ttcgaccgtg ttacggaaaa taagctggct	1320
tgcgcgttga aagaaaagct cga	1343

(2) INFORMATION FOR SEQ ID NO:285

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 521 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...521

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:285

ggcgtgaagt	acagcgatat	taaccaactc	ggcaacgaag	cagagcgcg	gccctcaaag	60
agagctatag	ccacctggct	aagctgcg	acgaagtgtc	gccatgggca	tcattcccgc	120
gacgctgac	tggaagacgg	tgaatccaac	ctctaacagc	agttcttcgc	aaataatact	180
cttgagagag	ggggagatcc	gaatgataag	ttttcggtgt	tccttctctt	tcttatttcc	240
cgtccttttg	ctttttgtgt	ttatccgcc	catttgctag	ccggtagaga	tgaccgattt	300
cggcagcatg	taaacgggca	aaaagagaaa	agtcgtatcc	tccttcgcat	tcggacataa	360
agaaaaagcc	gaaaccctct	tgcattgaag	aagtttcggc	ttttcggccg	gaggcaaacg	420
actatcaaag	actattccag	gaggagcaaa	ctatctccat	aagtcctgtg	ccactgncct	480
attgagaaag	cttactcgtc	aggcgtgccg	aatttcggcc	g		521

(2) INFORMATION FOR SEQ ID NO:286

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 446 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...446

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:286

ctgaaaaatt	tcattcgctc	agttttacaac	caaagcaatg	cgaagaggat	ttagatggca	60
aactgggata	cgtgctactg	atcgggaaaac	cattgagcaa	tatttggtg	acactgataa	120
tacaaaagtc	ccaacctctt	ttattcaaat	gtctccttaa	ttccaagtca	tccaactttt	180
ggttccatat	gcgcctcgac	tatttttttta	gttggtgttc	gccccttgat	actgtcggcg	240
atttgttatc	ggtcgattta	gcngtcacca	atgctcatga	attgcacaat	ctgatgaaaa	300
gactatcaac	aaagaaatct	catataatcc	tattgcacac	aaaatattct	ttacgcagaa	360
nggaaaggct	gcgatgctcc	aatcttacgt	gtttcttaaa	aagaaatcgc	cttctgggta	420
cacagtcaac	tctatcttaa	atctaa				446

(2) INFORMATION FOR SEQ ID NO:287

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1805 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1805

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:287

```
ggcatgctcc ctttgattcc cccagggttt gatcgagca agggatttag tcgtagcggc      60
gcgatatagc cagcttacc atccgcctct ttagctcatt ggccagagca cgtgatttgt      120
aatctcgggg tcgttggttc gaatccgcaa gaggctcgaa aagcattgca ccgattctct      180
cagcttggtg tgagaatcgg tgcagtcctt ttttactgtt cctaactctt tcaacacctt      240
ggttcgttcc ggatttctaa agggctgaaa ggaaaatcgc agtttttatt gcctcgtttg      300
ttgcggataa tccttatttt tgtatccatt taagggataa taagttcatg tcaaggaaaa      360
accataccca ctatctgttg ctctggatga cactctcctt ctgatcgtat gtttgcctct      420
ggagggccaa cggaatcgcg ctttaccgtg gttatcgatg cccggacacg gaggacatga      480
ttcgggggca tcggtaatgg tttacgagag aaagacatca atttggccgt ggctttgcgg      540
tgggacgact gatcaagagc aagcatccgg atgtgaaagt gctttatacc gtgagaagga      600
tttcttcggt accctgatgg gacgtgccga atatgccata aaaacaatgc cgaccttttt      660
atcagttatt atgtcaattc gcaagacgag gtcattggagg ctatggtacc gagacctatg      720
taatgggaca tgaactaaca gtaaaaaatat ggcggtagtc cagcgtgaga atgccgtcat      780
atttgggaga aagactatag gaccgtttat aaagggtttg acccccgttc gtcgagagtt      840
atatcatgtt cgaactgatg cagaatacgt atcaggatca gacatcaaac tggcccaaca      900
gatccaaaaa ggatttgttg ccaaggggcg tatgataggg ggggtgaagct cggcaatttg      960
gctgtactcg tgttttctgc atgccgagcg ttctcgtcga gctgggcttt ataagcaatc     1020
cggcggaggt cgttatttgg ggtcgggaagc cgggcgtgac gaattggctt cggctatccc     1080
cgaggatttg cccgatacaa agaggattat gacagacgtt ccggtaagtg tccgagcccg     1140
caccacaagc taccgaggaa gaggataaagg ttgaagcgaa ccagaagaca atggtatttc     1200
ttcgggtggc gatattgtct acggcaggaa agtatagctc ccaaggggca tgctgtaaag     1260
ccggatgagg gtgccattcc gcgaagaaaa cctataaaat acagatcctg tcttccacga     1320
cgagctcaaa aatggcgata agcgattgaa aggttacaag gtggtcattg aaaacgaggc     1380
ggtcgattct tttatcttac aggagcgggt tccagcgagg agaggctcgt caccttcgga     1440
aaaaagtcag gaaaagtttc cctgatgctt tctcgtggtt tatgaagcgg gcaaactgtg     1500
gagagagata tattgaaatg tcggaaagca ttacttagag gtaacaataa aagaaatgag     1560
aataagtaga ctacaaagat cggagcattg actctcattg ctctttttct gctgtactcg     1620
gcctgaacta cctgaaagga ttcaacgttt tcaaacgggc gaatgttatt acgccgcttt     1680
ccctgaagtg aagaacgtca acattgccag tcccgattgg tcaatggcta taaggtagga     1740
gtggtaaaag ctcttagttt cgacataaga atggtcgttc tatcgttgtg ggtattgacc     1800
tcgag
```

(2) INFORMATION FOR SEQ ID NO:288

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 430 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...430

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:288

gctttcatct	tcatggcttt	ccatgtagag	atggccggag	ctgcgatcaa	gcaatgacag	60
caggacgcaa	tcctcgga	atggctgcaa	tgattttgtg	tcctcatct	gcgcaaagaa	120
catggctaca	gccagaatga	tcaggaagag	ggaagaatag	tccccaaggc	gcaaacggct	180
gctccggcat	atcctcgagg	cgatagccta	cgaagatgga	tatattgacg	gcaaatactc	240
cgggcgggat	tgcgcaacgg	caaaaagatc	cagaaaatcc	tcctccgata	gccatgggtg	300
ttatccacta	tatcggcctt	gatcagtggc	aacatggcat	aacttcaccc	gaaggtgaat	360
cccgcgata	ccggaaaaag	gtgagaaaga	aggatagata	tggatttcac	ggcaaaaaaa	420
gaagaccact						430

(2) INFORMATION FOR SEQ ID NO:289

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 615 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...615

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:289

gcccgaata	cgaaaaatca	aacaaaatgt	ttcactaaca	aaaaagataa	cgaacatgaa	60
aagattatta	ctctctgctg	ctatcctaag	tagtatgggt	tgtttaatgt	caatgcacaa	120
gagttgaaaa	cctctgctga	catgaaagtt	cttttaagaa	gaatgtggta	ttggagggtat	180
ttactgccga	atggtgggtt	actgtccagg	tgaaaaagag	cgcattgcaa	aagcaattga	240
aatgtggatg	atgaatataa	ggagcgtgtt	tttcagacat	ttgttcatta	taatatggga	300
tctcaaaaaa	atggcctcgt	gttggccaac	ttttcattgc	attgatcaaa	cattggggcat	360
tccgggtttt	ccgacttttt	cagtttgccg	taggagaaaa	aaggtgaaaa	tctttcaata	420
ggtgctccaa	tagcaattaa	aataagatta	tgaaagggtt	tggtgatggg	acagcccctg	480
cagaggtaaa	cttaaatgga	ccaaagggtg	aacaccggaa	gatgtatgta	cagctacatt	540
actggtaaa	tcgatgctga	cctcataggg	aaacctctta	tgttgactca	tatgtattga	600
aaaacaatat	gaagc					615

(2) INFORMATION FOR SEQ ID NO:290

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 647 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...647

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:290

atcgccaagc	agaagccggt	catggtactg	gcttcgggct	ggcaaaacag	atgagtacga	60
aggattgtct	gttcgccggt	gctttggctg	ctacgatttc	cggcttggag	aaggagggtca	120
tttgccaaga	cggagcgtca	gttttcaga	actctggggt	aactacaata	cgcattgagaa	180
gctgatggcc	tacctgacgg	tcgcgatcat	tacgaacgcc	tgcgcgcaa	taaattggaa	240
agaagggttc	ctattgcact	tcaactcaatc	tcacagaaat	tgttcccgaa	ctgacttcaa	300
aatttctgcc	gcattcaacgg	attgcccggc	taaccgactc	ttctaccctg	cactccacct	360
ttctaaacca	tccgaacaaa	tcttgctcga	gtcggcatct	tttttcaccg	caaaccatcc	420
cttttctccc	tacgctctca	gcaatacctt	ttggtacgag	attgaagatt	atgccgagga	480
atacgaagaa	tgttgaaaag	ccggtacgaa	acacttacga	tcgtaggcgt	acgatgcacc	540
ctgcacgatg	caggagacca	gcgtaggcgt	acggtgctca	ttacaacagc	taattaccag	600
tacattatgg	acaattaaag	taaaacgaga	acgacctgga	aattttc		647

(2) INFORMATION FOR SEQ ID NO:291

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1153 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1153

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:291

gaaaacttcg	actctattgg	atccccgcga	atttggggaat	gaatacagtc	agccataacg	60
tcgggcatgg	tcatgaaaag	catcgcgcag	tccggatatg	ccgatacacc	gccggccaag	120

gccacttggt	tgatgctatg	atctttgccg	cttggcgaag	tttcttcac	aagatgtcta	180
tgaccgtgtg	ctgaaggatg	cgcacagatc	ggccttggtc	tttcttatga	agtcgggac	240
ttcggcaggt	tggtcgcgca	gagtatagag	gaatgatgtc	ttgagtcgc	tgaactatag	300
tcgtaaccgg	acacatgagg	acgggcaaag	cggaaagcat	cgggttgccc	tcggaagcca	360
acttattgac	gatggggcct	ccgggataac	ccaccccatc	accctggcac	atttgtcgaa	420
agcctctccg	gctgcatcgt	catcgtctgt	cctattacct	ccatatacgt	aggggagcga	480
accagaataa	ctgagagttg	ccccctgaaa	ccaacaagca	caggaatggg	aaagaggag	540
ctgtgactcc	tcacccggct	cacgaaggaa	gttggccagg	acatgggctg	aagatgatga	600
cttcagcat	cggaatgccc	aatgaaagag	acaatccttg	gcaaagctgg	tgccatacaag	660
gagcgatccc	agcaaaccgg	gtccacagt	aaagcgatgg	catcaatttc	ttctttgcga	720
atgccggcac	gtttgtagct	tcgctgacta	ccgggacaat	gttctgctga	tgccgacgcg	780
atgcagttcg	ggaaccactc	ccccgtaggc	tttgtgtacg	gcctgtccc	cgacacgttg	840
ctaagcatag	tttcgttcct	gaccacggct	gcagagggtg	cgcacaggag	ctttcgatcc	900
ccaatatgat	aatgtctttc	ttcattgctg	ttttttttct	atctgcaaaa	aaacgaataa	960
aaccttggtt	gagccaattc	tcctccgagt	gttgctgttt	tcaattgtga	taagggtactg	1020
ccatgagaaa	caaggagaat	aatggaatgg	gaacagacat	ccgaacctg	ggagatactc	1080
tcttttagagg	aaattccggc	ctctttcttc	agttgagtat	agacagcaaa	acgacttaag	1140
gcttgtgtca	taa					1153

(2) INFORMATION FOR SEQ ID NO:292

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 764 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...764

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:292

ggcttttttc	gcaatttttg	cgatggcttg	tgcatgccag	ggagggacgc	cggcaagtcg	60
ttcaccaact	ctacaggatc	tcggggcgaa	atgatgctgt	catggacgac	caatatctgg	120
gatcgctgt	cggcgaagcc	atctacgggc	aatgaccgag	gtggctccgg	ctctgaacca	180
aaacgagccg	atcatgctgt	ttcgcgcgta	tcggaaaagg	attttacggg	cttcctccgc	240
tatatcgcaa	tgtgctgcag	atcgacatca	accccgatat	attcaccaag	actttctcaa	300
atacggctat	gaccagtggg	ctaacgggtca	gctcgtcgtg	ctgtcaacag	tcctgcgaca	360
gattcactga	cggcctacgt	cgaatccaac	aatcggccat	acagaacctc	tttatccgcc	420
acgagctttt	cctcttcggc	cgctttggca	gaaagactgc	agtgcggatg	ccgaccagcg	480
cgtacagcgt	tgttcggata	ccatatcaat	gtgccggccg	atatactcag	ccacaaggag	540
gcaaagactt	cctgtggatg	tccaacaatc	agatgcgccg	gcgcaagggt	ttttgggtata	600
tactttcccc	tatcgcgag	catcggtct	gggactcatc	gtatgggtgga	ggtgcgtgac	660
tccgtgctca	aagccaatat	agaaggctcg	acgcagggtc	ttatcccgtc	acggagcgta	720
tgctactgaa	gcattcttac	tctacccggg	cgacaaaaag	cagg		764

(2) INFORMATION FOR SEQ ID NO:293

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 2237 base pairs

(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...2237

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:293

taggacattg	aggggaatcca	tccgtataat	gtttgacgac	aggacgcgag	aaagagccgt	60
ctcctgcagc	agacgcaggt	cttctttcct	cttgccgagg	cgagcagcaa	ggataggaag	120
agcgtcatca	aagccaacca	atgggaatgg	gtactccgct	cactgctccg	gccgcataca	180
atctgatcag	aaagccaaag	ctacgaggaa	agcatccacg	atgggaatgt	gtttgccttt	240
cagtgataga	aaagattcag	cagaagataa	agcactatag	agatcagggc	atagcggcaa	300
aagggaatc	aaggagtgac	aatatcactg	cgcaagccaa	aacacaagca	gagctatcag	360
tatataagct	ttggagagac	tccatgctcc	gcggcaatag	ggcgtctcga	tttgacggga	420
tgcaggcggg	cgatcgctct	acgcaaatat	cattgaagag	atagactgca	ctcgatgccg	480
aacaaaatgc	atcaggagta	tggtcagcct	tagcaaggct	tccgtatcac	caatcctgtt	540
ccgaaaaaca	ggggtaggaa	tacgatcaga	ttcttgatcc	actgcttagt	ctcatagagg	600
gagaaatgtg	atcatgtatg	caatagggaa	agctccgtcc	gatggtttct	cgcagcatga	660
caagggtctt	ctcttcggct	gcacgctttg	ggcttcaccc	tttttgctct	tgtctttcaa	720
tccgcaaaga	tgcagatgcc	gtggataatg	acacgatgca	gttcgtcttc	gtatcgaaga	780
tcaaagcacg	ggcattcgag	cgtacgggat	cgagactgat	aagcaggctg	ccatcacccg	840
atccgcttcg	caggaatcga	aggtgatgat	gtcgggtgat	tatcatgata	gagaaattcc	900
tgattggcct	tcaggatata	ttcgtcatca	cgaaaagata	ggagatttct	cccaccgctt	960
tcccatatcg	gctgcatact	cggctatcca	cttaccgacg	atccgtcttc	tgatccgagg	1020
aaggctgacc	cttcagcata	gaaattgatt	tttgccattg	tcttaattat	cgttttgccg	1080
gtcaccgtac	cctcaaccaa	agaaaatata	agtgcagcga	atggctgcag	cgctccggcc	1140
aaatcggcca	aaagggaata	gctcaccgta	taacgttatt	gcgtattttg	acggctccat	1200
agtagagggc	tacgacgtag	aacgtgtatc	gctggagccc	tgtacaatac	tgcatagacg	1260
gccgacaaag	ctgtggctcc	gtacgtctgc	atggcatcga	ccatgagccc	tctggctcca	1320
cttcgctaag	tggtttcatt	agcatggtcg	ggattccttc	cacaaacttc	attctcctcc	1380
ccaaaagccg	accagtccgc	gcaagccttc	agtgatcaga	tcatggcacc	ggaagctctg	1440
aatataaccga	taccgaccag	catggccagc	gataggggaat	gatggtcaca	gccgtaccga	1500
aaccatcttt	tggcccttca	taaaggcatc	atacacattg	atgcgtgcac	gcagtcacc	1560
aatgacgata	cgcacattat	tccaaacaga	agaatggatg	caaattgcagt	gctgataaac	1620
taaatgtttc	cggaggcaga	gtccgtcctg	catagattac	ccctccataa	agagaagaga	1680
ggaaagaaga	aaaagaagaa	gagggttttg	gaagaatcga	tacgtgctt	gatccctact	1740
gcaaggatgg	cgaccaatgt	ggaacaaacg	tggcaatcag	aaccgggaca	aagatgtcgg	1800
taggatttgc	cgcccgacct	gtaggcgata	ggccatgatg	gaagagggaa	tcagcgtaag	1860
tactggcat	tgatggccaa	gaacataatc	atggcatcgc	tggctttatc	ttttgctgat	1920
tgatcgtttg	caaactctcc	atcgaacgga	taccgagggg	gtagcagcat	tgtcaaggcc	1980
taacaggttg	gccgatatat	tcatgaagaa	ttgccagtg	cgggatgggc	cttaggtaca	2040
gaagggaaca	atcggcttga	acaggtgaac	tgatctgtgc	cagcttgctt	ataaggccac	2100
ttcgttcgct	attttcatca	gaccgagcca	cagagcgagt	acactgggtc	gtgcaaggct	2160
atctcaaagg	cattcttcga	ctggctgaaa	gaagcctgca	ccatccatcg	aatacggaca	2220
catcgccgaa	agctatc					2237

(2) INFORMATION FOR SEQ ID NO:294

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 678 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: double
(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...678

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:294

```
gggaatgggt cttccattga ctatgatttg atgaaattaa aatccggcca ccaatcggta      60
atgccgaaaa aatcagctcc acaaaggtaa gattatcagc aaacgaaaaa gatgctttgc      120
attcagagac cattgttttt gctctgagct atcggcaaat gtactcatcc tgcaaaaaag      180
aagagggcga cccaagatat ttggatcgcc ctctgttctt tatgctaact tcattcagag      240
ggctgcggct cctcctgaaa aaagtgttgt cagatcatat aactttattt tttgcatcca      300
ggctcgcaact gatgaaattg ccctgtgcat cgaacagcaa atctactcct tgttggtgta      360
cacgatttcc gccttgatat tgccgttgga cttctttcga tgtccttgat aaatgcaccg      420
gggtagttcc gggtgacgta atgatgatct tagccttgat gtgagcagga atgttgctgt      480
catcatcctg tcgtctacgt ttccgctgat gaggttgccc tgtgcatcga acagcaagtg      540
tactccctat tgggtgtagta aatttctacg tcataagtac cattggagta cgctcgatac      600
tgtgaatgac agcttcccgg taattctgat gacatagtga tgatcagagc ctgatgttgg      660
cccgaatgtg tttcgatg                                     678
```

(2) INFORMATION FOR SEQ ID NO:295

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 493 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...493

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:295

```
ggctggagaa taacaagaaa taaaaagacg atgaatcaat tgaccttcac agaaaaacga      60
accttaacga ccaatcaagt ataaaagcga caaaagctcc ccggtctcct tcttcgtcaa      120
tgaatcgaag ttatagtcca gcgaagccat tgaacaatgt ttcgggcgga aagattatct      180
ttgctcccat tcttatgaca ctctgttttag cgaagttaaa atttatgagt cgcagatttg      240
ccgaaacgag agcttggtatt tgtcccgtgt caatgaggag gttgtggccg attgatgcaa      300
```

caccgtcttt	ttgaagaaag	tctgaaaagt	cgcgagggtg	cccctcgttc	gttttttatg	360
agggacctcc	ctctgccaac	gggatgcccc	gctccaccac	gtaatggctt	cgtgccatca	420
aggacactat	ttgtcgttac	agacgatgaa	gggttttccg	agtggaccag	gaaagcccgg	480
ctgggatact	acg					493

(2) INFORMATION FOR SEQ ID NO:296

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 872 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS
- (ix) FEATURE:
 - (A) NAME/KEY: misc_feature
 - (B) LOCATION 1...872

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:296

cctgcccgtg	acagtggata	agtccatgat	cgggtgtaccg	ggttgccacg	tggcatactc	60
attcttcgca	agacggaaga	aaagaatggc	cgtacctaat	gatcgacacc	aacgactctg	120
aaaatgactg	tatagcccgt	caaggacaaa	ctcttttcc	gcaagattct	aatagaaaag	180
tacattagta	tatctcgaat	atagactccg	aattattctt	accccgatct	gtgcagacag	240
tgtcacccctc	aaaagggcga	ctgtctgcat	agtaatttga	tacgagacac	ctccctgccc	300
agatcgcagt	caggggctcg	aatacaattc	cgatgatcac	atgaaaagaa	tggactttct	360
tacatccccg	tattgcgtgc	tttattgatc	tgacgctttt	gctgctcgcg	tatggagctt	420
cggctcagca	tcattgtgtcc	attgtacgat	ccgtggtaag	gtgacggata	tggcgggaaa	480
ggagggcatt	gttttgccac	tgtactattg	gcggtacagg	cttatggggg	agcctgtgag	540
ggaaggggaga	gtttgtgatc	aaacgggtta	cagccggatc	gtaccgtgcg	tggtcagctg	600
catgggcttt	gcttcgttcg	agaccacgct	ccatatcaag	cagacaccac	ggtacacttc	660
cgactcaaag	aacatagtat	cgctctaaag	aggtgcagg	gctggccact	tataagaaca	720
agacggacgg	caacgatcgg	tggatcggag	tgctctggaa	catatccagc	ctacctctg	780
cgcgcattct	tctcctgctt	ccggtaatgt	ggtgcaaagc	aacagcctga	ccgattcgtg	840
ggaacgactt	ctcgacaaat	aggcagcgac	ga			872

(2) INFORMATION FOR SEQ ID NO:297

- (i) SEQUENCE CHARACTERISTICS:
 - (A) LENGTH: 562 base pairs
 - (B) TYPE: nucleic acid
 - (C) STRANDEDNESS: double
 - (D) TOPOLOGY: circular
- (ii) MOLECULE TYPE: DNA (genomic)
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: UNKNOWN
- (vi) ORIGINAL SOURCE:
 - (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...1008

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:299

```
acgccaaacc ggacttcagc gacgaagacg gtacacgggt agcagagctg aggacaaatt      60
cgccgaaatg gaaggctgga atgccgagag cgatgcagca tgttgctgag cggacttggc      120
atcaaagagg atctgcacta tatgctgtga aggatctgag cggaaagcaa aagggtgcgtg      180
tgttactggc gcgcgcctat acggtaagcc tgacaacctc ttgctcgacg agccaacgaa      240
cgacccgacc tcgagaccgt ttcattggtg gaaaactatc tgagcaactt cgaaacaccg      300
tgctcgtcgt aagccacgac cgccacttcc tcgattcggg ctgaccata cgggtggacat      360
cgacttcggc aaggtacaac agttcagcgg cactacagct tctggtacga atccagccag      420
ctcgctctgc gccagcaaca gagcagaaca agaaggccga agagaagcgg aaggagttag      480
aagagtttat cgccgcttca gtgcgaacgt agctaagagt aagcaaacga cgagtcgcag      540
aagatgcttg agaagctcaa tatcgaagag attactccct cttcccgtgc tatccgggta      600
ttctcttcac acccggtcgc gaaccgggca ataagatctg gaagtaaagg ggctgaccaa      660
aagtatcgaa gggcaacttc ttttcctgat ctgaacttca atgtcgaaaa ggacgacaag      720
attgtcttta tcagcgagat cctcgtgcga tgaccgcctt attcagtatt atcaacggag      780
agatacacc gatgaaggta catacgaatg ggggcaaacc attaccacgg ctttctgcca      840
ctggacaatt cgggctatct caatacggat ctgaatctcg tgagtgggtg tctcagtttg      900
ccaaggatac gaacgaaatt tttctcaaag gttcctcggc cgtatgctgt cagcggagag      960
gagatttcta aaaggcatcc tcctctccga gggagaagat ccgtgatg      1008
```

(2) INFORMATION FOR SEQ ID NO:300

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 384 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: double

(D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

(A) NAME/KEY: misc_feature

(B) LOCATION 1...384

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:300

```
aggagcagtc ccacaactgc aagctatgcg acgtatgtct aaggagaaag acggagaact      60
gcaccatcat gaagtggacg acttgctaca tttcctcggc aacgtttgac cgaagaaaca      120
ccctacgtac tgattgcgga tatctgcgag aactgcatca ccattccgac gtcgtgctca      180
aagcaatacg cttcgtatga aagaatcctg gcagtactcc actgatgggt ataccgtctt      240
cctgagcaca aacttcccgagg agactgaac ctttagcccc cgcttcgctc tcccgtctta      300
cagattgcac cttctccaat agaattatag aaacctttgc aaaagagaag attatcaaga      360
```

aggtatcttt tttgctcacc tatt

384

(2) INFORMATION FOR SEQ ID NO:301

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 535 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...535

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:301

ggcgaatcgg	tttcataaca	atgagaccgt	tgcacaaaaa	cccttccacc	cctcatatca	60
atcaagacag	atacaagcat	tgatttgacg	aagaaaggga	gcttcatgcg	gtctctctgc	120
aaacctcaag	aataccccga	tggaaactgg	gaaaatttct	gtttgtttgg	tgcccatatg	180
tttgaggttt	gatcttcctg	aaaaacactt	aagaatcagc	tctgcggcaa	aagacttcaa	240
tgaaatccta	taaaatagtt	gcaaacagct	gatagttagc	gcattgatgg	gagctaataca	300
gctgacaatc	gtttcttatt	tctcgcctat	ttgacgagga	aagagtactt	ctctaattga	360
aacttgggga	aatttctatt	tgctcgggtg	cctataccga	aggtttgacc	tttcccgaag	420
acactaagaa	tctgctctgc	acaaaagaac	tcaatgaaaa	tcccctgcaa	cagtcttaac	480
agtgcgaagag	cgaaataact	aaatatgttg	tgttatgaaa	agggagctat	atcag	535

(2) INFORMATION FOR SEQ ID NO:302

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1437 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1437

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:302

aagtanttcg	ccctgagcat	aacgcacatc	gcttttgagc	ttggtcaggg	tgtaatggct	60
gctacagtag	gcatattctc	gaacaaagaa	ctttcccaga	tttgcccttg	gtgccggatt	120

ctgtgttaag	ggcttggttct	atgagttcaa	cttcgccttg	tcggtcatga	gtgtagecgac	180
cagctcgcgg	aacttgccac	ctccttgcca	agtgtgctgc	ctttaccgtt	gatcggattc	240
agcatattac	ggaagaagca	tcgagattgt	cctttcgtct	gatatacattg	actttgcac	300
tttcccatcc	gactcacggg	caatggccaa	cttcagatca	tcttaaagggt	acagagcgaa	360
tctgcctctt	tctgtaagac	aaggctacgc	tctaccatac	tttcaccttt	tcgggattgg	420
tgcgataagc	cgtattcagc	tggacagcac	cagattgttg	cgcttatcgg	agccgtcgat	480
ggaagagggt	agctcttatc	cactttgtcg	aaaccatcca	gtacctcact	cgatacgtta	540
aagccatcat	ggcgatgaac	acgaggtaca	tcagggttgat	catcttttcc	tattggcatt	600
cccattagaa	cctactgcca	tggcttataa	gggtgagtgc	cggatgatga	aggattagaa	660
gcacaaaaat	tgccgggcat	accgggagac	ctacattcgt	tgtcaaggct	tggagcaagc	720
gagcatacac	ctcgtgagtt	gtgtcagttg	gcgtgccata	cgctcgtttt	cgttgcggaa	780
tgaaaactgt	cgatgacact	attgtcatac	atatctcgga	tatgagccaa	tcccggttga	840
tgcgatcgat	ggtgtcgatc	tgggagctga	tgcccttgag	cttatttcgt	atatgggtatt	900
caggccggag	atattgcgac	tgaggctttc	ctctgctgga	tatacgattg	cgaattgaga	960
cgcaggcctt	cctgatccgc	tgcattctgt	cgtagctctc	cgcatggcg	gctgcagtc	1020
ggccgatacg	gcaagctgtt	cgctgtcttc	agccagtttg	tctatgcctt	cgctcagggt	1080
tggatctgct	cttccggcag	tattccggtc	agttgggact	ggaaagggtg	gcaggcttgg	1140
gctgttcttg	cggttgcgta	cccaaagagg	cagaggaagg	cgcacagaag	atggtctttc	1200
cgcgtatgca	gctgcttctt	tggcctttca	cgaagatact	cccgcgctg	ctccatctcc	1260
cgacgggtcca	tcggttcttc	gagtcagtt	cggggaagac	ctcttcccag	tgatattcca	1320
ttgggggtttt	tcaaataccg	agataaaaaa	caccacagaat	tctgtgatca	tccacgaaaa	1380
gcattctcatt	ggccatcggc	aaatggagca	acttgaagag	acgccaaaat	caccact	1437

(2) INFORMATION FOR SEQ ID NO:303

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3007 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...3007

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:303

ccgtcttttc	aaaaattggt	atttccaaaa	agaagttggt	ttttgggcaa	ttccccgatt	60
ccaaacataa	acgggggtcga	aacgaaagaa	gtatcctggg	gttcaatttt	accgaatcca	120
atacgatgct	acgcattttg	gccaaagaaa	aagagcattg	ctttttccac	ttgaattggc	180
tccgtataaa	acggctccgg	aaggagtttg	taagctcctt	tcctaataac	agattttgaa	240
agttcttgat	ggcagaagct	tccatgctca	aagttttttc	atctctgaat	gagcgaaatt	300
cttaaaaagt	aagttgacca	acataactca	cacaataatt	attgagggca	aagttatcta	360
acaagcccgg	aaaagcaaga	aaaacgagaa	aaatctcaca	aatagcggcc	ttgcgttctt	420
tgcagggagc	aaaagataca	cataagaaaag	attgtagaca	aaagaagaac	aacaaatctc	480
gagccggaaa	cgccggaaaag	tcgcgcgcga	atcttgaaaa	agtcgcgcga	aaattttttg	540
ttttggttcg	ggttttgaaa	aaatctcgcg	cgagagcgga	aattttttgc	gccacgtttt	600
taggaatagc	aaacaataat	tttcacggac	gagaatgaga	gcgaggagag	atggctgcaa	660
tgctttttgta	ttgttcgtca	aggagtaaac	cgcgcaagag	gttttggtcc	ttcttctctg	720
ggcgcgtcgg	agcggggaga	ccgcgagggg	gcttttgcca	gagggagaag	tatcggtcga	780
aaacgtattt	ttgtggccaa	agcacctata	tttcttaggg	ttatgagaaa	gaacgtttcg	840
gccgattgca	gcttgccgtc	gtggcagctg	tcattatagg	ctgtggatgc	tctcggcattg	900

tgccaatatg	ggtacgccgg	agggggggcc	tatgatgtga	cgcccccgcg	tttgctcaag	960
gctacgccgg	caatgggtag	acgaagcaaa	caggcaataa	gatctccctc	ctattcgatg	1020
aagctatccg	atattgaaac	aaaacgagac	ggtgatcgtc	tcgccaccac	agatcaaaaag	1080
ccgaaaaatat	ccgtctatgg	ccgcatgctg	accatcgagc	tgcgcgaaat	cttcgcgaca	1140
gtaccaccta	tacgatcgac	tttaccaacg	gtttggcgac	aacaacgaag	ggaatatcct	1200
ggaaaaacttc	tgctatgctt	tttccccggc	gatgtacttg	attcgatgca	gacggcgggc	1260
cgggtgatcg	atgcctgacg	ttggagccgg	tggcaggtgt	cttggtcggc	attcacgatt	1320
cggagcggat	acggctttca	cgaagactcc	tttcctgcgt	actacactga	cggagaggac	1380
ggctccttca	cgttgaaaaa	tctccacgac	ggccgctaca	agtctttgcc	cttcaggacg	1440
ccgatcgcga	ctacgcctat	agccagttgt	cgaaggcggt	gctttttctc	cggattggta	1500
ccgtaccgag	gtggcagata	tgccttgctt	tcggatacac	tcttggccaa	tgccgatacc	1560
cttatgccgt	ggattcggca	atggcggaaa	aagggaatac	atccactctc	caggaaaacc	1620
ggccgaatcg	cgggcagcga	atacatcgct	tcggcaacag	cctgtcggta	tcgccccgac	1680
aacgttctgc	tccgattcta	cacctccgac	ttccgcggga	atatctatcc	aagaaaagtc	1740
gtcccgattc	cgtacaagtg	tctcactatt	caacacaaga	cctgatacca	ttccggcact	1800
gcacctgctg	ggaagcaaaa	gggaaaaaac	tgggtattcg	ctatcagaaa	aggtgagaaa	1860
gaatcgctta	ctggctgacg	gataaagaga	tctatagccg	agacactttg	gcttttcggt	1920
cacttaccct	aaaagcgact	cgctcaacat	tcacggccca	agacggacac	cttgccgatg	1980
gccaagccga	aagtatccgt	acagcgccgc	cgaaggcgga	agcagcagcc	tctgctcctc	2040
ttatgaatat	atccatcaga	atagtagcac	catagcatcg	ggtactccgg	gcgataccat	2100
cagtatctag	catcccaacc	gttggctctc	gtggatacgg	caggcgtttc	cgtagccggc	2160
aagcggatag	cttgtggcgc	gatgtccctg	tcaagctccg	tcccgttcgc	tcaatccgct	2220
gaagtctctt	gtcgatgccg	gctggcagat	ggggagagct	accgcgtacg	gatcgactcg	2280
gccgtctggc	gaagcgtgta	cgacggtgga	acgccccctg	ggagcagggt	ttttcgttcc	2340
ttccggagga	ggtctcagca	gcctgttact	gaagttgtcg	ggagaggctg	acagtactgc	2400
ctagtggaac	tgctgaataa	gggtggagag	cccgtagcga	caaagaaaag	gaacggggag	2460
aagtcctctt	cccgtacctc	aagcccgatg	tctactatga	acgcctgttt	ctcgatgaga	2520
atggcaacgg	tcgctgggat	gccggcaata	cccaacaaag	cagcccgaat	gggtgttcta	2580
ctaccgccaa	tcgtttacct	caggaagaac	tggcagcagg	ccgaagactg	ggtagtcact	2640
cgtgagagta	tgccgatcag	aaaccggaag	ctatccgaaa	ggtaaaaacc	gcagaaagca	2700
aaagcgcgac	ctcaacaggg	aatacagagga	gcgaatggct	cgcaatcgaa	gaaaaagagt	2760
aagaagtaac	aaagcatcat	atccccctgc	acatcatcga	ccgatgtaga	ggagaagaat	2820
caccacataa	tgaagcaaaag	atttcgacta	tcggcatacc	gctcatattc	gttttgggag	2880
tattgctgtc	ggttggttacg	gattcgatcc	gatcaaggat	aaacaaaaca	agctgaagga	2940
gaactcaata	acggaggcag	cgagacttcg	ccgactcctc	cggaggggacg	tcggtattcg	3000
atgtccg						3007

(2) INFORMATION FOR SEQ ID NO:304

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1122 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1122

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:304

tgccaaactc cttgaagtag tcttctatcg tatggcgacg g¹aagtgcaga tggcttccaa

tgc	atcccc	a	tcgg	caaa	agt	atcct	ccaaa	gcg	attg	ctg	tgg	caa	acgc	cct	gtc	cgga	120	
aac	tccg	gggt	agcc	gag	acc	gag	caact	ga	acagg	cgg	cg	gat	atag	tcg	gag	taa	acga	180
tgc	gaca	aagc	ctc	gcccc	ctc	ccac	attg	ta	tgt	ccg	cccc	caa	agaga	aag	ctt	tgt	gatc	240
gtat	gctt	ca	cg	cagg	caga	gg	caag	atcg	cgg	at	atgga	cg	gtct	cgaa	gc	gtt	ggcca	300
atgg	cataca	ga	ata	ca	gag	ct	gttc	agca	agg	ac	gaatc	gt	gcc	gagga	ta	ata	cccc	360
gcgg	tagatc	gt	ccatt	cg	a	gg	ctg	gattc	ctt	acc	agct	ttt	cg	gctt	g	ca	actt	420
agag	catcgt	agt	cgcccc	at		gag	gggc	cagg	t	cat	att	gtc	cgc	act	gatc	a	tagg	480
tcagt	ctgtc	cc	atata	cccc		ct	acc	gtgga	a	at	gtag	agc	agg	tag	ggc	g	agag	540
cg	ttcc	agat	t	ctc	gat	gat	gtag	cgc	gt	a	cc	atc	gt	gt	t	gac	gtc	600
gac	gctt	atc	cg	catt	ggct	tt	ctca	aagg	c	t	tg	gcat	ga	at	cac	aaa	aat	660
acagg	cctcg	ac	ggt	tatt	at	cct	gtag	gaa	cag	tcccc	gt	ag	aaa	at	at	g	aat	720
ttata	ctttt	cga	aga	aagcc	at	cgt	atg	cc	cac	gctt	gat	at	cc	naa	acg	g	aa	780
agact	tg	cg	c	atc	gta	agga	gtt	gag	ccaa	a	at	ct	ct	ctt	ccc	ag	cgt	840
gtc	aga	a	gaa	ctt	ttat	ctt	gtt	ag	ccata	a	ct	at	tt	ttt	ct	gt	ct	900
ttt	att	gt	gc	c	ct	ca	aat	at	a	agga	att	g	att	ag	tt	gc	ca	960
gagg	caaaa	ag	c	act	c	ctt	ac	g	gatt	g	cc	gt	ac	gc	t	ctt	tt	1020
gtg	tgg	gcaa	at	cccc	ctt	ag	c	gtt	g	acc	gc	cga	aga	ag	tc	t	g	1080
ggc	accc	cagc	g	tgg	ag	gtg	g	ca	gc	ctt	gc	ca	aga	a	ag	ag	cc	1122

(2) INFORMATION FOR SEQ ID NO:305

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 685 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

(A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...685

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:305

g	ttc	gaaa	aag	c	gttt	taatt	c	ctg	tat	ggt	g	caatt	gaaa	t	atg	atag	ag	atagg	act	60													
c	gc	gtc	cacc	g	ata	cgtttt	a	att	cct	gta	t	gg	tg	caat	g	aa	at	ctccc	g	ggtt	120												
c	ac	gg	ctttg	a	gga	attggg	t	tt	ta	atcct	g	t	at	ggt	gca	a	tt	gaa	atcc	g	gtt	180											
t	agg	ctttt	c	t	g	ttt	gat	gt	g	agg	agt	t	ta	cg	aaa	aag	gtg	a	a	accc	aaaa	t	ttc	240									
c	at	agt	gtcg	a	t	gt	ctg	att	c	t	at	g	aaaa	a	c	ca	aggg	gtg	t	g	ac	gact	ga	t	at	ttt	tatt	300					
g	att	at	caat	c	att	t	ca	aa	g	at	c	gc	cc	gg	gag	g	t	ta	at	cat	g	g	caa	agg	ctt	g	at	ga	attt	360			
c	tc	gag	ccga	c	g	ctt	ca	aaa	a	g	at	g	at	ag	at	g	c	g	g	ct	gt	at	c	gt	g	ct	gt	at	t	at	aga	ata	420
t	at	cc	gtt	gc	a	ga	ac	g	ct	ct	t	g	cc	a	att	at	t	t	ct	ttt	tcc	a	ac	ca	ac	g	tt	ctt	gt	ct	gga	480	
a	g	aaa	at	at	g	t	ca	g	act	at	c	t	ct	ct	ttt	t	cc	ata	att	c	cg	g	ct	g	ct	ct	g	ct	ct	g	at	ta	540
c	ta	ag	ag	ctt	g	act	tcc	gat	a	ttt	cccc	ct	c	ga	ac	ac	aga	g	tt	ct	ga	acc	a	att	c	ag	ata	600					
t	ttt	ct	gc	ac	ag	ttt	ta	aca	t	ttt	g	cca	ac	a	c	g	ctt	t	ca	c	g	at	at	ct	g	ta	c	act	aaa	ata	660		
a	t	a	t	a	c	a	t	a	c	a	t	a	c	a	t	c	t	t	a	a													685

(2) INFORMATION FOR SEQ ID NO:306

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 523 base pairs
- (B) TYPE: nucleic acid

(C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...523

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:306

gagcgggtcat	agtggcaata	ccactcattc	tttgcaaaaa	attaagtgca	atcgttcggc	60
ttgcaacaaa	gccccggtaac	tgccctccac	acgcaggata	cttgaccgcg	ttttacggag	120
ccgccatccg	atacataggg	agtccaatca	cggcttcgaa	tcgttcgaag	acacggcgag	180
ctacctccat	gccggaatga	tgccatcagc	cttcattacc	attgtggcct	gcaagctcct	240
tccgatgggg	gataatggca	ttggaagaaa	tgtctccatc	ggcaatgtcc	tctgaattgc	300
cagatcgatc	aattttttcca	aaagcatttc	ttcatgagtc	atacttaaaa	gtgatgaggg	360
tattacggat	gtttatttgg	tatttccgc	tcgccggcaa	gggtgtaaga	ggagtgcctg	420
cgataggctt	ngctcgtatc	ggatagtctt	cccgatnatg	ccctcctcta	ctttctcggc	480
gagctatcgc	ccccgaacga	tgagctgacc	cactgtcagc	agc		523

(2) INFORMATION FOR SEQ ID NO:307

(i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 669 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...669

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:307

ggcgagcttt	ttcacgcaat	tggatcangc	tctttttactc	tttccagtta	aaactcatat	60
tctttttctaa	atagtttaggt	ttgctatttc	atgacataag	gcatactcgc	cggaaagcag	120
tcggcactgt	ccggtcgccc	gtaggggtgt	actattattt	atgatcacat	acctcgggtca	180
gcacacccat	agtactttcg	ggtgcaagaa	accgatattc	aagccctctg	ctccttttgcg	240
agctttttcgt	cgatcagctt	aatgccttta	gaggcggcat	cggccaatgc	ttcgtggcat	300
cttccacaca	aaaagcaatg	tgatggatac	cttctccacg	ctttctatga	atttggcaat	360
agggcctttcg	tcagaggtcg	gctccaacaa	ttcagcttgg	tctgccctac	catcataaat	420
gcggtacgca	ccttttggtc	ggtacttcct	caatgctgta	acacttgagt	ccaatacat	480
tttcgtagta	gggagggtct	cttcgatact	tttgaccgca	ataccgagat	gttcgatgta	540
gataaattca	ttgctctcta	ctttttttatt	gtgttgactc	ttctaccatg	tccgaagatc	600

ttaatgcaaa gcatttttcgc aaatgtagaa attattctga tggactgatt aagtattgnc
catataatc

660
669

(2) INFORMATION FOR SEQ ID NO:308

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1000 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:
 (A) NAME/KEY: misc_feature
 (B) LOCATION 1...1000

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:308

tcctaaacct	ctttccgagc	aatcatctga	ggggtaaata	tgacagagaa	taaggtatta	60
cgggtgtgatt	acatatattt	gtacttaaat	aatccactca	aaacggatga	aaacgattgc	120
gaacgagtct	tttcttcttg	atacaaagtc	cccgaaccta	ctctgaggcg	tcttccttg	180
tatttgtctt	acgtccgctt	ttgcatgcgg	atggatgcga	gtcgggtgtt	tccacgcgga	240
tcgctgtgcc	gtaggagtgg	atgcttcgct	cgtggccaag	gatctctcct	atgttcgggtg	300
gatgggcgta	cacgggtagg	gtaccgggtg	gcggacatgg	tggtgtgctg	aacgactttc	360
tgggctttac	gcaccaccac	cgtgctttcc	tctcgggggtg	ggaagtcttg	gtgctgcttt	420
gttgcaggac	tcgggtttgc	gcacttcggg	ttggagattg	ccgccggggt	cgatgtgaat	480
ccggatattg	ggacactaat	atcaatggca	tccccgttta	ccataagagc	cgggttgcca	540
gttgtgcgct	cgagagcgtg	tggatatagg	tattcttacc	gttccgatcg	ggcggcacag	600
tcgatggccg	atgagatgat	agcagcaggg	atcaaggatg	ttggaatttt	accccttggc	660
gcatcagtgt	acccgaaggc	gtggtctaca	gaatacgtcg	atgtatgccc	agttggctgt	720
gatgttcaat	cggataaatc	gctaccttag	gtctccgaag	gctgaacaat	cctcctttgc	780
cctttttata	ataagggtct	tcgctcgctt	tggaacgatg	aagataattg	ctgcggcatg	840
aactatggtg	cgcatgtcag	cgaaatgcga	cgtgcggaca	tcttcccggt	gctccctgtc	900
cggatggagg	gggagccgat	ttttgtgtgg	agaacctgtg	cttttcctca	aggccgactc	960
cttgttgccg	gaagggcacg	ccttttctat	cggatttttt			1000

(2) INFORMATION FOR SEQ ID NO:309

- (i) SEQUENCE CHARACTERISTICS:
 (A) LENGTH: 1785 base pairs
 (B) TYPE: nucleic acid
 (C) STRANDEDNESS: double
 (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:
 (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...1785

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:309

cggccatagc	gtagggctgt	ccgtccgcgg	agtccgcgag	tgggtgctgt	ggctcgtcgg	60
aataccaatc	tggagatagc	actcaagaac	aagtccatgc	atacgatcgt	gccgaagcgc	120
ggctgcgttc	tttggaacag	ccggtttttt	ccacaacccc	ggcacgggag	cgaaagcgga	180
aaacgcacct	tcctctctcc	tgtcagtcca	caaacaaacg	aatagtcatg	cgaaagaaac	240
gctccatccc	tactacaaa	tcagcaggcg	gaagttcagc	aaacgaaatt	ccggcgcgaga	300
tattcgagaa	agaggagaa	aaacggacgg	cgacgagggc	tgagatcagc	ctgctcctcc	360
ttgtcgcctc	cggtatctgg	atagccaagc	gaacagggct	tggttcggtt	ctccggccga	420
agtcgcctac	accgttccgc	atcgaataga	ccaggctcac	cctgacaccg	ggtgaggatt	480
tccttaccga	aggacgggtc	gctggcgggt	cgacaccctg	ccgcaagact	cttggctggc	540
tatcgtcttc	cggacggagc	ggatgcagat	accctgctga	tctcgtgcg	gccgagggaa	600
aagaagtcgt	cacccgtgcc	ggacgcaact	actattacac	gctaagataa	acggactcaa	660
gcccggccgc	acctatacct	acagggcaag	acgggagagc	agacatcgcc	ctggtaccga	720
ttctccattc	ccgacgttcg	gctgctaccg	acttcatcta	tatcggggac	gttcaggatc	780
cgggaacgga	ggcagtcagg	ctctgtctca	acgactgcgc	accctgcata	ccaccccgat	840
tttctggctt	tgggtggcga	tcagatcgaa	ggccccacgg	attctattgg	gaagtatggc	900
atcgtgtcat	aggcgactgg	acggnatcga	ccccgtcatc	gccgctaccg	gcaaccacga	960
gtatatcaaa	ggactgaaaa	acagctcgat	ccccgttggg	tacctcagta	caactatccg	1020
gccaatgggt	caaaggcttc	gagcggcggt	cgtactacat	agacttcccc	catatgcgct	1080
catcgtcatg	gacaccaacg	acatccaatg	gccggcatcc	gtattcacca	ccgcacgtgg	1140
ttgaaaaacg	cactcgaaac	caccgtacag	ccgtggaggt	ggtcatgttc	caccacggag	1200
tgtattcggg	gcggcaggga	cgcataaccc	gatcatccgc	tacggcttcc	gctccattct	1260
ggaggaaagg	ggtgcgacct	cgtcctgcaa	ggacacgata	atgcctactc	ccgtatcacc	1320
accagacgga	gtccggcacg	aagacgacac	ccgtatatat	catcagcagc	gctcgcccaa	1380
gcactaccgc	aacggattct	ccgagcagca	cgacaggatc	gctccggcct	ctacctctat	1440
cagaccatcc	acgtcacgca	gggagagatc	gctaccgctc	caccaccttc	gacaatcgcc	1500
cgtacgacga	cctgcaccta	agaagcaggg	aggccgaacc	acagtcaagg	acaatgccga	1560
ggactggaag	agatcttcgc	tttcgacaac	tttgccgaca	gcaaaaaagg	ccgtaaaagc	1620
gtgccgacta	tcggcaggga	gccccagaac	gagcagccgg	acatcgtaag	cggacgatcg	1680
gtggcgcgta	aaatcagatc	gaaaacgaac	gaacaccaca	ctgccaacaa	cttttacta	1740
ccttcgttgc	cgtaacgaca	gaatgaaaca	tagacgatcc	tcggt		1785

(2) INFORMATION FOR SEQ ID NO:310

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 406 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: double
- (D) TOPOLOGY: circular

(ii) MOLECULE TYPE: DNA (genomic)

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: UNKNOWN

(vi) ORIGINAL SOURCE:

- (A) ORGANISM: PORYPHYROMONAS GINGIVALIS

(ix) FEATURE:

- (A) NAME/KEY: misc_feature
- (B) LOCATION 1...406

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:310 ;